OPERATOR'S MANUAL

ALLIS-CHALMERS
5020 - 5030

●

Simplicity
9523 - 9528

Compact Diesel Tractor

DEALER'S PREDELIVERY GUIDE & REPORT

MODEL 5020, 9523, 5030, 9528 DIESEL TRACTOR

TRACTOR SERIAL NO. _____ ENGINE SERIAL NO. _____

DEALERSHIP _____ TRANSMISSION TYPE _____

ADDRESS _____ TRACTOR MODEL _____

CITY _____ DATE TRACTOR RECEIVED BY DEALER

STATE _____ ZIP _____

PHONE _____
AREA CODE

TO AUTHORIZED DEALER: PREDELIVERY GUIDE AND REPORT IS TO BE REMOVED FROM THE OPERATOR'S MANUAL AND USED BY YOU AS A GUIDE FOR, AND A REPORT OF, THE PREDELIVERY SERVICE WORK ON THIS UNIT. WHEN COMPLETED, THIS REPORT IS TO BE SIGNED BY YOU AND RETURNED IMMEDIATELY TO YOUR REGION OFFICE.

PLEASE FILL IN ALL OF THE INFORMATION REQUESTED ABOVE, THEN FOLLOW INSTRUCTIONS GIVEN BELOW.

FINAL PREDELIVERY CHECK

CHECK AND PERFORM REQUIRED SERVICE TO MAKE EACH OF THE FOLLOWING STATEMENTS TRUE.

Since many of these items are safety related, each item must be carefully checked and all necessary corrective work completed and properly recorded. Place "X" mark in Column "A" if tractor is satisfactory: (1) as received, or: (2) after being set up. Place "X" mark in Column "B" if corrective work was done during predelivery check and explain work done in "REMARKS" Column.

A	B	NOTE: Page Number refers to information in Operator's Manual.	REMARKS
		SHIPPING DAMAGE	
☐	☐	Tractor has been checked for shipping damage and any and all damage is listed in this report.	
		TRACTOR SET UP	
☐	☐	This tractor has been completely set up in accord with the Tractor Set-Up Instruction supplied with the tractor.	
		PRE-OPERATIONAL CHECK, do before engine is started.	
☐	☐	COOLANT LEVEL is within 1/2" (13 mm) of radiator neck. Page No. 17 & 21.	
☐	☐	ENGINE OIL LEVEL is between "FULL" and "ADD" marks on dipstick. Page No. 17 & 22.	
☐	☐	FUEL INJECTION PUMP OIL LEVEL IS up to level plug. Page No. 17 & 28.	
☐	☐	TRANSMISSION – HYDRAULIC System OIL LEVEL is up to level plug. Page No. 17 & 24.	
☐	☐	AIR CLEANER ELEMENT is clean and properly installed. Page No. 26.	

DEALER'S PREDELIVERY GUIDE & REPORT (Cont'd.)

A	B		REMARKS
		PRE-OPERATIONAL CHECK, do before engine is started (Cont'd.)	
☐	☐	All air intake hoses and clamps are properly installed and tightened. Page No. 27.	
☐	☐	A sufficient quantity of No. 2 diesel fuel for all normal pre-delivery operation has been placed in the fuel tank.	
		GENERAL SET UP CHECK	
☐	☐	On Models 5020 & 9523, the four capscrews holding each wheel guard to the rear axle housing have been tightened to 50 ft.-lbs. (68 N · m).	
☐	☐	On Models 5030 & 9528, the four U-bolt nuts holding each wheel guard to the rear axle housing have been tightened to 7 ft.-lbs. (9 N · m) and a second nut has been added and locked to each of the first four nuts.	
☐	☐	Each rear wheel hub to axle capscrew has been tightened to 115 ft.-lbs. (156 N · m).	
☐	☐	In each rear wheel to hub, four capscrews and two stud nuts have been tightened to 115 ft.-lbs. (156 N · m).	
☐	☐	In each rear wheel with detachable rim assembly, four disc to rim bolts have had the nuts tightened to 90 ft.-lbs. (122 N · m).	
☐	☐	All front wheel to hub capscrews, have been tightened to 50 ft.-lbs. (68 N · m).	
☐	☐	The five capscrews holding the upper link mounting bracket to the rear of tractor have been tightened to 60 ft.-lbs. (81 N · m).	
☐	☐	The four nuts holding the PTO guard to the final drive housing have been tightened to 70 ft.-lbs. (95 N · m).	
☐	☐	The three nuts holding the muffler to the engine manifold have been tightened to 28 ft.-lbs. (38 N · m).	
☐	☐	The steering wheel to steering shaft nut has been tightened to 32 ft.-lbs. (43 N · m).	
☐	☐	The SMV emblem is properly installed either on the rear of the seat (Page No. 36) or on the optional ROPS Frame cross channel (Page No. 61) and is fully visible from behind the tractor.	
☐	☐	All Safety and Operational Decals shown on pages 10 & 11 of the Operators Manual that are applicable to this specific tractor are properly installed and fully legible.	
☐	☐	All (5) cotter pins in the steering linkage, all (4) cotter pins in the brake linkage, and both (2) cotter pins in the clutch linkage are installed and securely bent. Also the roll pin in clutch arm hub is securely wired in place.	
		OPERATION AND ADJUSTMENT	
☐	☐	Tire pressures are set at the minimum pressures listed in the Tires Pressure and Load Tables (Pages 30 & 31) for the size tires on this tractor.	
☐	☐	Fan belt is properly tightened. See Page No. 49.	

DEALER'S PREDELIVERY GUIDE & REPORT (Cont'd.)

A	B		REMARKS
		OPERATION AND ADJUSTMENT (Cont'd.)	
☐	☐	Battery electrolyte is at the indicator level and the specific gravity is 1.240 or above in each cell. Page No. 25.	
☐	☐	Instruments and warning lights operate correctly. See page No. 35.	
☐	☐	Wheel guard lights are properly connected to the tractor wiring harness and all lights operate correctly in the various light switch positions. See page No. 35.	
☐	☐	The safety start switches in the transmission do not allow the engine to start except when the transmission shift lever is in the "S" start position and the PTO shift Lever is in the rear (disengaged) position.	
☐	☐	The brakes function properly and are adjusted correctly. Pages 35 & 50.	
☐	☐	The clutch functions properly and is adjusted correctly. Pages 35, 41 & 49.	
☐	☐	The engine Glow Plug operates and the engine starts correctly. Page No. 40.	
☐	☐	Throttle and fuel shut off linkage operate correctly Page No. 37.	
☐	☐	Engine low idle speed is 750 to 800 RPM, and high idle speed is 2650 to 2700 RPM after engine is warmed up to operating temperature.	
☐	☐	Hydraulic relief pressure is approx. 1710 PSI (11,800 kPa) at 1285 engine RPM.	
☐	☐	All hydraulic functions operate correctly. Page No. 37 & 48.	
☐	☐	Transmission gear shift and Hi - Lo range shift levers operate smoothly in all gears. Page No. 36 & 41.	
☐	☐	Tractor operates properly in all gears. Page No. 41.	
☐	☐	After tractor has been operated and thoroughly warmed up there are no leaks of:	
☐	☐	a. engine oil.	
☐	☐	b. power train and Hydraulic Oil.	
☐	☐	c. radiator coolant	
☐	☐	Coolant anti-freeze tests to -20° F. (-29° C.) or lower.	
☐	☐	All grease fittings on the tractor have been lubricated.	
☐	☐	Overall appearance of tractor is clean and new.	
☐	☐	Operators manual is with the tractor.	

The above Final Pre-Delivery items have been completely checked and corrected where necessary, as indicated.

SIGNATURE: _____ DATE: _____
(Serviceman performing Pre-Delivery check)

THIS UNIT HAS BEEN SET-UP, LUBRICATED AND ALL ABOVE PREDELIVERY SERVICE HAS BEEN COMPLETED.

DEALER'S SIGNATURE _____
(Date)

DELIVERY RECORD MODEL 5020, 5030, 9523 & 9528 DIESEL TRACTOR

THIS FORM MUST BE FILLED OUT BY THE DEALER AND SIGNED BY THE CUSTOMER AT THE TIME THE UNIT IS DELIVERED IN ORDER FOR THE WARRANTY TO BE VALID.

TRACTOR MODEL NO. _____

TRACTOR SERIAL NO. _____

DELIVERED TO _____

ADDRESS _____

POST OFFICE _____

COUNTY _____

STATE _____ ZIP _____

PHONE _____
AREA CODE

ENGINE SERIAL NO. _____

FUEL INJECTION PUMP S/N _____

DEALER _____

ADDRESS _____

POST OFFICE _____

STATE _____ ZIP _____

EXPLAIN CARE, SAFE OPERATION AND ADJUSTMENTS OF ITEMS LISTED BELOW:

- ☐ LUBRICATION
- ☐ BREAK-IN PERIOD
- ☐ FRONT WHEEL BEARINGS
- ☐ ENGINE TEMPERATURE
- ☐ RADIATOR DRAIN COCK
- ☐ ENGINE DRAIN PLUG
- ☐ RADIATOR PRESSURE CAP
- ☐ FAN BELT ADJUSTMENT
- ☐ ENGINE OIL
- ☐ PROPER FUEL
- ☐ OIL FILTER
- ☐ FUEL FILTER
- ☐ OPERATOR'S CONTROLS & INSTRUMENT PANEL
- ☐ GEAR SHIFT
- ☐ ENGINE CLUTCH
- ☐ TOWING
- ☐ SAFETY START SWITCHES
- ☐ HYDRAULIC SYSTEM
- ☐ DRAWBAR & 3-POINT HITCH
- ☐ TRANSMISSION
- ☐ FINAL DRIVE
- ☐ BATTERY CARE
- ☐ POWER TAKE-OFF
- ☐ BRAKES
- ☐ AIR CLEANER
- ☐ LIGHTS
- ☐ TIRE PRESSURE
- ☐ WHEEL TREAD
- ☐ STARTING & STOPPING (Tractor & Engine)
- ☐ ACCESSORIES
- ☐ STORING TRACTOR
- ☐ USER'S RESPONSIBILITY – WARRANTY
- ☐ OPERATOR'S MANUAL DELIVERED TO OWNER AND HE HAS BEEN INSTRUCTED AS TO ITS CONTENTS
- ☐ AGREE ON STARTING DATE IN FIELD & 100 HR. CHECK
- ☐ OPERATOR'S SAFETY PRECAUTIONS, SHIELDS & DECALS

THIS UNIT HAS BEEN DELIVERED IN GOOD CONDITION AND THE OWNER/OPERATOR HAS BEEN INSTRUCTED IN ITS CARE, ADJUSTMENT AND SAFE OPERATING PRACTICES.

DEALER'S SIGNATURE _____
(Date)

OWNER/OPERATOR SIGNATURE _____
(Date)

Original Copy - for REGION 1

BE A SAFE OPERATOR

BY THINKING – BEFORE ACTING

AND

BY READING YOUR OPERATORS MANUAL

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that can not be completely safe guarded against without interfering with reasonable accessibility and efficient operation.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT.

THE COMPLETE OBSERVANCE OF ONE SIMPLE RULE WOULD PREVENT MANY THOUSAND SERIOUS INJURIES EACH YEAR. THAT RULE IS:

NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST A MACHINE WHILE IT IS IN MOTION!

⚠ WARNING

1. For your own safety, and that of others, read and understand the "operator's manual" before attempting to operate this tractor. (If manual is not available contact your local dealer).
2. All shields including power drive system safety shields must be kept in place.
3. Stop engine before leaving operator's position to adjust, lubricate, clean, or unclog machines, unless otherwise specifically recommended in the "operator's manaul."
4. Wait for all movement to stop before servicing the machine.
5. Keep hands, feet and clothing away from power driven parts.
6. Keep off equipement unless seat or platform for operation and observation is provided by original manufacturer.
7. Keep all others off.
8. Use flashing warning lights when operating on highways except when prohibited by law.
9. Make certain everyone is clear of machine before starting engine or operation.

DELIVERY RECORD MODEL 5020, 5030, 9523 & 9528 DIESEL TRACTOR

THIS FORM MUST BE FILLED OUT BY THE DEALER AND SIGNED BY THE CUSTOMER AT THE TIME THE UNIT IS DELIVERED IN ORDER FOR THE WARRANTY TO BE VALID.

TRACTOR MODEL NO. _____

TRACTOR SERIAL NO. _____

DELIVERED TO _____

ADDRESS _____

POST OFFICE _____

COUNTY _____

STATE _____ ZIP _____

PHONE _____
AREA CODE

ENGINE SERIAL NO. _____

FUEL INJECTION PUMP S/N _____

DEALER _____

ADDRESS _____

POST OFFICE _____

STATE _____ ZIP _____

EXPLAIN CARE, SAFE OPERATION AND ADJUSTMENTS OF ITEMS LISTED BELOW:

- ☐ LUBRICATION
- ☐ BREAK-IN PERIOD
- ☐ FRONT WHEEL BEARINGS
- ☐ ENGINE TEMPERATURE
- ☐ RADIATOR DRAIN COCK
- ☐ ENGINE DRAIN PLUG
- ☐ RADIATOR PRESSURE CAP
- ☐ FAN BELT ADJUSTMENT
- ☐ ENGINE OIL
- ☐ PROPER FUEL
- ☐ OIL FILTER
- ☐ FUEL FILTER
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- ☐ GEAR SHIFT
- ☐ ENGINE CLUTCH
- ☐ TOWING
- ☐ SAFETY START SWITCHES
- ☐ HYDRAULIC SYSTEM
- ☐ DRAWBAR & 3-POINT HITCH
- ☐ TRANSMISSION
- ☐ FINAL DRIVE
- ☐ BATTERY CARE
- ☐ POWER TAKE-OFF
- ☐ BRAKES
- ☐ AIR CLEANER
- ☐ LIGHTS
- ☐ TIRE PRESSURE
- ☐ WHEEL TREAD
- ☐ STARTING & STOPPING (Tractor & Engine)
- ☐ ACCESSORIES
- ☐ STORING TRACTOR
- ☐ USER'S RESPONSIBILITY – WARRANTY
- ☐ OPERATOR'S MANUAL DELIVERED TO OWNER AND HE HAS BEEN INSTRUCTED AS TO ITS CONTENTS
- ☐ AGREE ON STARTING DATE IN FIELD & 100 HR. CHECK
- ☐ OPERATOR'S SAFETY PRECAUTIONS, SHIELDS & DECALS

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DEALER'S SIGNATURE _____
(Date)

OWNER/OPERATOR SIGNATURE _____
(Date)

2nd Copy - for REGION 2

BE A SAFE OPERATOR

BY THINKING – BEFORE ACTING

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TRACTOR MODEL NO. _____

TRACTOR SERIAL NO. _____

DELIVERED TO _____

ADDRESS _____

POST OFFICE _____

COUNTY _____

STATE _____ ZIP _____

PHONE _____
AREA CODE

ENGINE SERIAL NO. _____

FUEL INJECTION PUMP S/N _____

DEALER _____

ADDRESS _____

POST OFFICE _____

STATE _____ ZIP _____

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- ☐ FINAL DRIVE
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- ☐ AIR CLEANER
- ☐ LIGHTS
- ☐ TIRE PRESSURE
- ☐ WHEEL TREAD
- ☐ STARTING & STOPPING (Tractor & Engine)
- ☐ ACCESSORIES
- ☐ STORING TRACTOR
- ☐ USER'S RESPONSIBILITY – WARRANTY
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DEALER'S SIGNATURE _____
(Date)

OWNER/OPERATOR SIGNATURE _____
(Date)

3rd Copy - for DEALER'S FILE

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DELIVERY RECORD MODEL 5020, 5030, 9523 & 9528 DIESEL TRACTOR

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TRACTOR MODEL NO. _____

TRACTOR SERIAL NO. _____

DELIVERED TO _____

ADDRESS _____

POST OFFICE _____

COUNTY _____

STATE _____ ZIP _____

PHONE _____
AREA CODE

ENGINE SERIAL NO. _____

FUEL INJECTION PUMP S/N _____

DEALER _____

ADDRESS _____

POST OFFICE _____

STATE _____ ZIP _____

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DEALER'S SIGNATURE _____
(Date)

OWNER/OPERATOR SIGNATURE _____
(Date)

4th Copy - for CUSTOMER

BE A SAFE OPERATOR

BY THINKING – BEFORE ACTING

AND

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2. All shields including power drive system safety shields must be kept in place.
3. Stop engine before leaving operator's position to adjust, lubricate, clean, or unclog machines, unless otherwise specifically recommended in the "operator's manaul."
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9. Make certain everyone is clear of machine before starting engine or operation.

SERVICE PUBLICATIONS

Service Training is given Dealers on equipment they sell. Therefore it is recommended that they perform any necessary service work.

When you purchased your equipment you received literature that thoroughly explains procedures necessary to perform daily maintenance and field adjustments. However if you desire to have additional service and parts information, the following are available.

Publication Available	Order Part Number
Operator's Manual	2097132
Parts Book	
Service Manual	9003451

HOW TO ORDER PUBLICATIONS

U.S.A. RESIDENTS Order from your authorized Dealer or order direct from Allis-Chalmers Corporation. To order direct, use the handy order forms below. Check or Money Order made payable to Allis-Chalmers Corporation must accompany all direct orders. Consult your dealer for current prices before ordering.

CANADIAN RESIDENTS: All publications must be ordered from your authorized Dealer.

Parts Merchandising
P.O. Box 14534
West Allis, Wisconsin 53214
Attn: Dept. 6291, Zone HF

PLEASE SEND TO:

Name: ____________________

Address: ____________________

City __________ State ______ Zip ______

____ Qty. __________ Part No. $________ Amount

Check or money order in U.S. dollars .... Total $______
(Do not send cash or stamps)

Parts Merchandising
P.O. Box 14534
West Allis, Wisconsin 53214
Attn: Dept. 6291, Zone HF

PLEASE SEND TO:

Name: ____________________

Address: ____________________

City __________ State ______ Zip ______

____ Qty. __________ Part No. $________ Amount

Check or money order in U.S. dollars .... Total $______
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West Allis, Wisconsin 53214
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PLEASE SEND TO:

Name: ____________________

Address: ____________________

City __________ State ______ Zip ______

____ Qty. __________ Part No. $________ Amount

Check or money order in U.S. dollars .... Total $______
(Do not send cash or stamps)

Parts Merchandising
P.O. Box 14534
West Allis, Wisconsin 53214
Attn: Dept. 6291, Zone HF

PLEASE SEND TO:

Name: ____________________

Address: ____________________

City __________ State ______ Zip ______

____ Qty. __________ Part No. $________ Amount

Check or money order in U.S. dollars .... Total $______
(Do not send cash or stamps)

TO OUR CUSTOMER

The following pages and illustrations are printed to help supply you with the knowledge to better operate and service your new equipment.

We are proud to have you as a customer and feel you will be proud to be the owner of this equipment.

Any piece of equipment needs, and must have a certain amount of service and maintenance to keep it in top running condition. We have attempted to cover all the adjustments required to fit most conditions; however, there may be times when special care must be taken to fit a condition.

Study this operators manual carefully and become acquainted with all the adjustments and operating procedures before attempting to operate your new equipment. Remember, it is a machine and has been designed and tested to do an efficient job in most operating conditions and will perform in relation to the services it receives.

If special attention is required for some conditions, ask your authorized dealer; his Parts and Service Organization will be glad to help and answer any questions on operation and service of your new machine.

ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning.

TAKE TIME FOR SAFETY

BE A SAFE OPERATOR

AVOID ACCIDENTS BY

THINKING BEFORE ACTING

AND BY READING YOUR OPERATORS MANUAL

NOTE: Some illustrations in this manual show units with optional equipment installed. This optional equipment may be purchased from your local authorized dealer.

NOTE: Some photographs in this manual were taken of prototype models. Production models may vary in some detail.

CAUTION: Some photographs in this manual may show shields or cover panels removed for purposes of clarity. NEVER OPERATE Unit without all shields and cover panels in place.

NOTE: The Company reserves the right to make changes in the specifications at any time without notice or obligation.

USER'S RESPONSIBILITY

It is the responsibility of the user to read the Operator's Manual and understand the safe and correct operating procedures as pertains to the operation of the product, and to lubricate and maintain the product according to the maintenance schedule in the Operator's Manual.

The user is responsible for inspecting his machine, and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts. It is the user's responsibility to deliver his machine to an Allis-Chalmers dealer, for service or replacement of defective parts which are covered by the standard warranty.

The user should notify his Selling Dealer in advance so arrangements can be made to have his 100-hour or 30-day inspection performed. The user should not be charged for this inspection or adjustment, but is expected to pay for oil, filters, or any parts and labor which are not covered by the standard warranty. The user is responsible for bringing the product to the Selling Dealer's shop to have this inspection performed.

If the Dealer is requested by the Customer to travel to another location, or haul the machine to his shop for the purpose of performing a warranty obligation or free inspection, it would be for the Customer's convenience, and the cost for such trips is to be paid for by the Customer. Any arrangement whereby the Dealer agrees to absorb all or a part of the cost of these trips is to be made between the Dealer and the Customer and is to be considered a courtesy to the Customer.

The user will advise the Dealer when unit will start in field so dealer representative can be on hand to make necessary adjustments and help you get started properly.

Allis-Chalmers does not allow credit for the cost of travel time, mileage, or hauling as a warranty allowance.

FARM EQUIPMENT WARRANTY

ALLIS–CHALMERS CORPORATION (the Company) warrants new products sold by it to be merchantable and free of defects in workmanship and material at the time of shipment from the Company's factory. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE EXPRESSLY STATED HEREIN.

The Company will repair, or at its option replace, any part (excluding normal maintenance items) of its new products which under normal use and service fails to conform to this warranty, provided that such parts shall be returned to the Company's factory or to the Company's Dealer authorized to handle the new product, transportation charges prepaid, within 12 months (except that in the case of engines sold as power units the period shall be 6 months, and in the case of crawler tractors the period shall be 6 months or 1500 hours, whichever occurs first) from the date of delivery of such new product to the first user.

No warranty of any kind is made or shall be imposed upon the Company with respect to (1) new products which have been subject to operation in excess of recommended capacities, misuse, negligence or accident, or have been altered or repaired in any manner not authorized by the Company, or (2) tires, as they are warranted separately by their respective manufacturers.

The Company also warrants all parts sold by it and furnished by an authorized Dealer, including parts furnished under this warranty, to be free from defects in workmanship and material for a period of 90 days from the date of purchase of such parts or to the expiration of the original warranty, whichever is later, and will repair or replace, without charge, excluding installation, any part that fails to conform to this warranty.

The Company also warrants the power train only of all wheel drive Allis-Chalmers Farm Tractors delivered to a first user to be free of defects in workmanship and material at the time of shipment from the Company's factory, subject to the following:

Components covered by the power train warranty include gears, shafts, torque limiters, bearings, housings, oil-cooled clutches and oil-cooled brakes.

The Company will repair, or at its option replace, any part (excluding any maintenance items) of the power train defined above which, under normal use and service, fails to conform to this warranty, subject to return of the part as set forth above, within 24 months from the date of delivery to the first user.

THE COMPANY'S LIABILITY, WHETHER IN CONTRACT OR IN TORT, ARISING OUT OF WARRANTIES, REPRESENTATIONS, INSTRUCTIONS, OR DEFECTS FROM ANY CAUSE SHALL BE LIMITED EXCLUSIVELY TO REPAIRING OR REPLACING PARTS UNDER THE CONDITIONS AS AFORESAID, AND IN NO EVENT WILL THE COMPANY BE LIABLE FOR CONSEQUENTIAL DAMAGES.

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USER'S RESPONSIBILITY

It is the responsibility of the user to read the Operator's Manual and understand the safe and correct operating procedures as pertains to the operation of the product, and to lubricate and maintain the product according to the maintenance schedule in the Operator's Manual.

The user is responsible for inspecting his machine, and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to other parts. It is the user's responsibility to deliver his machine to an authorized dealer, for service o. replacement of defective parts which are covered by the standard warranty.

The user should notify his Selling Dealer in advance so arrangements can be made to have his 100-hour or 30-day inspection performed. The user should not be charged for this inspection or adjustment, but is expected to pay for oil, filters, or any parts and labor which are not covered by the standard warranty. The user is responsible for bringing the product to the Selling Dealer's shop to have this inspection performed.

If the Dealer is requested by the Customer to travel to another location, or haul the machine to his shop for the purpose of performing a warranty obligation or free inspection, it would be for the Customer's convenience, and the cost for such trips is to be paid for by the Customer. Any arrangement whereby the Dealer agrees to absorb all or a part of the cost of these trips is to be made between the Dealer and the Customer and is to be considered a courtesy to the Customer.

The user will advise the Dealer when unit will start in field so dealer representative can be on hand to make necessary adjustments and help you get started properly.

Simplicity does not allow credit for the cost of travel time, mileage, or hauling as a warranty allowance.

FARM EQUIPMENT WARRANTY

Simplicity Manufacturing Company, a division of Allis-Chalmers Corporation (the Company) warrants new products sold by it to be merchantable and free of defects in workmanship and material at the time of shipment from the Company's factory. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE EXPRESSLY STATED HEREIN.

The Company will repair, or at its option replace, any part (excluding normal maintenance items) of its new products which under normal use and service fails to conform to this warranty, provided that such parts shall be returned to the Company's Dealer authorized to handle the new product, transportation charges prepaid, within 12 months (except that in the case of engines sold as power units the period shall be 6 months) from the date of delivery of such new product to the first user.

No warranty of any kind is made of shall be imposed upon the Comapny with respect to (1) new products which have been subject to operation in excess of recommended capacities, misuse, negligence or accident, or have been altered or repaired in any manner not authorizied by the Company, or (2) tires, as they are warranted separately by their respective manufacturers.

The Company also warrants all parts sold by it and furnished by an authorized Dealer, including parts furnished under this warranty, to be free from defects in workmanship and material for a period of 90 days from the date of purchase of such parts or to the expiration of the original warranty, whichever is later, and will repair or replace, without charge, excluding installation, any part that fails to conform to this warranty.

The Company also warrants the power train only of all wheel drive Simplicity Farm Tractors delivered to a first user to be free of defects in workmanship and material at the time of shipment from the Company's factory, subject to the following.

Components covered by the power train warranty include gears, shafts, torque limiters, bearings, housings, oil-cooled clutches and oil-cooled brakes.

The Company will repair, or at its option replace, any part (excluding any maintenance items) of the power train defined above which, under normal use and service, fails to conform to this warranty, subject to return of the part as set forth above, within 24 months from the date of delivery to the first user.

THE COMPANY'S LIABILITY, WHETHER IN CONTRACT OR IN TORT, ARISING OUT OF WARRANTIES, REPRESENTATIONS, INSTRUCTIONS, OR DEFECTS FROM ANY CAUSE SHALL BE LIMITED EXCLUSIVELY TO REPAIRING OR REPLACING PARTS UNDER THE CONDITIONS AS AFORESAID. AND IN NO EVENT WILL BE THE COMPANY BE LIABLE FOR CONSEQUENTIAL DAMAGES.

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METRIC CUSTOMARY UNIT EQUIVALENTS

LINEAR

Multiply:	by:	to get:	Multiply:	by:	to get:
inches	X 25.4	= millimetres (mm)	X 0.03937	= inches
feet	X 0.3048	= metres (m)	X 3.281	= feet
yards	X 0.9144	= metres (m)	X 1.0936	= yards
miles	X 1.6093	= kilometres (km)	X 0.6214	= miles
inches	X 2.54	= centimetres (cm)	X 0.3937	= inches
microinches	X 0.0254	= micrometres (μm)	X 39.37	= microinches

AREA

inches²	X 645.16	= millimetres² (mm²)	X 0.00155	= inches²
inches²	X 6.4516	= centimetres² (cm²)	X 0.155	= inches²
feet²	X 0.0929	= metres² (m²)	X 10.764	= feet²
yards²	X 0.8361	= metres² (m²)	X 1.196	= yards²
acres	X 0.4047	= hectometres² (hm²) [hectares (ha)]	X 2.471	= acres

VOLUME

inches³	X 16387	= millimetres³ (mm³)	X 0.000061	= inches³
inches³	X 16.387	= centimetres³ (cm³)	X 0.06102	= inches³
inches³	X 0.01639	= litres (l)	X 61.024	= inches³
quarts	X 0.94635	= litres (l)	X 1.0567	= quarts
gallons	X 3.7854	= litres (l)	X 0.2642	= gallons
feet³	X 28.317	= litres (l)	X 0.03531	= feet³
feet³	X 0.02832	= metres³ (m³)	X 35.315	= feet³
fluid oz	X 29.57	= millilitres (ml)	X 0.03381	= fluid oz
yards³	X 0.7646	= metres³ (m³)	X 1.3080	= yards³
teaspoons	X 4.929	= millilitres (ml)	X 0.2029	= teaspoons
cups	X 0.2366	= litres (l)	X 4.227	= cups

MASS

ounces (av)	X 28.35	= grams (g)	X 0.03527	= ounces (av)
pounds (av)	X 0.4536	= kilograms (kg)	X 2.2046	= pounds (av)
tons (2000 lb)	X 907.18	= kilograms (kg)	X 0.001102	= tons (2000 lb)
tons (2000 lb)	X 0.90718	= metric tons (t)	X 1.1023	= tons (2000 lb)
tons (long) (2240 lb)	X 1016.05	= kilograms (kg)	X .000984	= tons (long) (2240 lb)

FORCE

ounces — f (av)	X 0.278	= newtons (N)	X 3.597	= ounces — f (av)
pounds — f (av)	X 4.448	= newtons (N)	X 0.2248	= pounds — f (av)
kilograms — f	X 9.807	= newtons (N)	X 0.10197	= kilograms — f

ENERGY OR WORK
(watt-second = joule = newton-metre)

Multiply:	by:	to get:	Multiply:	by:	to get:
foot-pounds	X 1.3558	= joules (J)	X 0.7376	= foot-pounds
calories	X 4.187	= joules (J)	X 0.2388	= calories
Btu	X 1055	= joules (J)	X 0.000948	= Btu
watt-hours	X 3600	= joules (J)	X 0.0002778	= watt-hours
kilowatt-hrs	X 3.600	= megajoules (MJ)	X 0.2778	= kilowatt-hrs

PRESSURE OR STRESS
(newton/sq metre = pascal)

inches Hg (60°F)	X 3.377	= kilopascals (kPa)	X 0.2961	= inches Hg
pounds/sq in	X 6.895	= kilopascals (kPa)	X 0.145	= pounds/sq in
inches H_2O (60°F)	X 0.2488	= kilopascals (kPa)	X 4.0193	= inches H_2O
bars	X 100	= kilopascals (kPa)	X 0.01	= bars
pounds/sq ft	X 47.88	= pascals (Pa)	X 0.02088	= pounds/sq ft

POWER

horsepower	X 0.746	= kilowatts (kW)	X 1.34	= horsepower
ft-lbf/min	X 0.0226	= watts (W)	X 44.25	= ft-lbf/min

TORQUE

pound-inches	X 0.11298	= newton-metres (N•m)	X 8.851	= pound-inches
pound-feet	X 1.3558	= newton-metres (N•m)	X 0.7376	= pound-feet

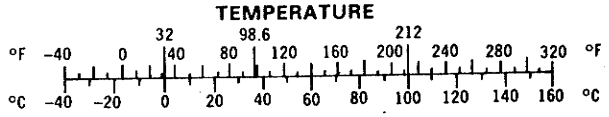
VELOCITY

miles hour	X 1.6093	= kilometres/hour (km/h)	X 0.6214	= miles/hour
feet/sec	X 0.3048	= metres/sec (m/s)	X 3.281	= feet/sec
kilometres hr	X 0.27778	= metres/sec (m/s)	X 3.600	= kilometres hr
miles/hour	X 0.4470	= metres/sec (m/s)	X 2.237	= miles/hour

COMMON METRIC PREFIXES

mega	(M) = 1 000 000	or 10^6	deci	(d) = 0.1	or 10^{-1}
kilo	(k) = 1 000	or 10^3	centi	(c) = 0.01	or 10^{-2}
hecto	(h) = 100	or 10^2	milli	(m) = 0.001	or 10^{-3}
deka	(da) = 10	or 10^1	micro	(μ) = 0.000 001	or 10^{-6}

TEMPERATURE



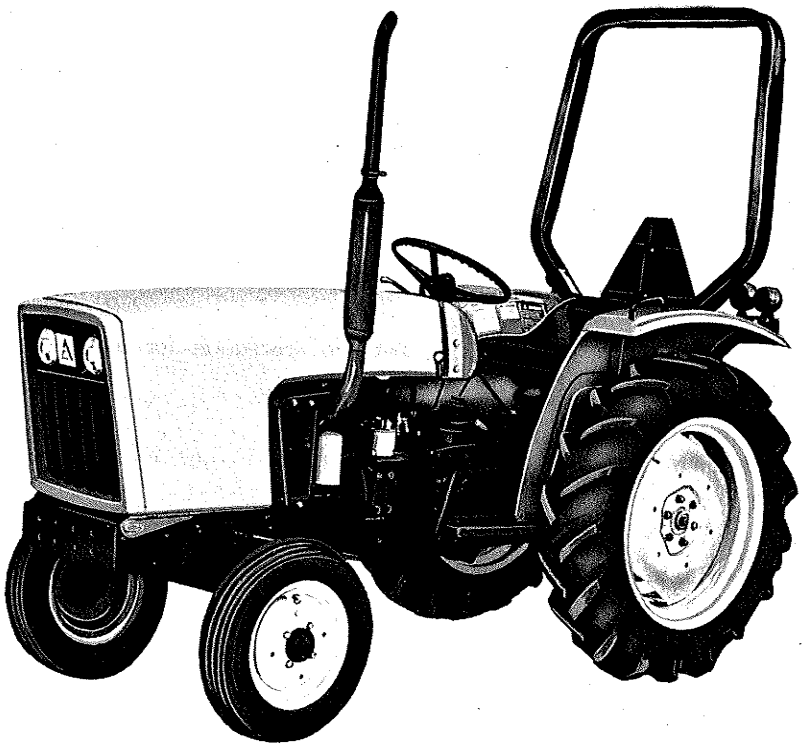
°Celsius = 0.556 (°F — 32)

°F = (1.8°C) + 32

METRIC INFORMATION

This manual has metric equivalents in parentheses. For example, behind the measurement 5" appears (127 mm). So, the metric equivalent of 5" is 127 millimetres.

These metric equivalents are provided for your convenience as an aid in converting to the metric system. A chart showing metric terms, examples, and abbreviations used in this manual is provided above.



T-65471

THE NEW EQUIPMENT BATTERY SERVICE ADJUSTMENT POLICY

1. If within a period of 90 DAYS after day of sale to the original user, the new equipment battery becomes unserviceable (not merely discharged) in normal use, due to defective material or workmanship, the company will replace it with an equivalent new battery, without charge, to the original user.

2. If after the expiration of such 90 DAYS but before the expiration of 24 months from date of sale to the original user (each such month being designated herein as a unit of service) the new equipment battery becomes unserviceable (not merely discharged) in normal use, due to defective material or workmanship, it will be replaced for the original user, in exchange for the unserviceable battery, with an equivalent new battery at an adjusted price. This adjusted price shall be determined by applying to the then current retail price of the new battery, the percentage of the maximum (24) units of service which was received from the unserviceable battery.

LIMITATIONS

No-charge replacements or adjustments under this policy may be made by any authorized dealer.

This policy does not cover the following:

1. Unserviceability due to abuse or neglect, failure to maintain recommended electrolyte level, fire wreckage, explosion, freezing, the addition to the battery of any chemical or solution other than approved water or battery grade sulfuric acid of proper gravity, the use of a group size smaller than the group size of the original equipment battery, or continued operation of the battery in an undercharged condition (below half charge - 1.190 sp. gr.).

2. Breakage of containers, covers or posts.

3. The cost of transportation, service calls, recharges or the use of rental batteries.

Proof of date of purchase is required for all claims. This policy is void if the date coding on the battery is removed or destroyed.

AE 4-78

SAFETY MEANS . . . .

– USE YOUR HEAD to keep yourself and others safe!

– KNOW and FOLLOW the safety rules and procedures for the job at hand — Shortcuts lead to accidents.

– THINK about the job you are doing at all times! Routine work does not mean routine thinking.

– BE ALERT to potential danger situations — Correct them yourself or have them corrected.

– THE ONLY WAY IS THE SAFE WAY — Use your eyes to find safety hazards before they find you.

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SAFETY PRECAUTIONS

ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

This symbol is used to call your attention to safety precautions that should be followed by the operator to avoid accidents. When you see this symbol - Heed Its Warning.

Many hours of lost time and much suffering is caused by the failure to practice simple safety rules.

IT IS TOO LATE TO REMEMBER WHAT SHOULD HAVE BEEN DONE AFTER THE ACCIDENT HAS HAPPENED.

1. **STUDY** this Operator's Manual. **LEARN** how to use the tractor controls for safe operation.

2. **TRACTOR** should be operated only be those who are responsible, have been instructed thoroughly in tractor's operation, and have been authorized to operate it.

3. **ONLY** one person, the operator, should be permitted on tractor when tractor is in motion. **NEVER CARRY PASSENGERS.**

4. **USE** the handholds and steps to get on and off the tractor.

5. **START** the engine from the operator's seat only. **PLACE** the gear shift lever in START - "S" position and the PTO shift lever in the **DISENGAGED** (rear) position to close the starting circuit.

6. **DO NOT** by-pass the safety starting switches. If they malfunction, check with your authorized dealer and have proper repairs made.

7. **BEFORE** starting tractor in motion, look around carefully to make sure no person or obstruction is in your path of travel.

8. **ALWAYS** drive the tractor at safe speeds for the type of ground it is traveling on. The rate of travel on hillside or curves should be regulated so there is no danger of tipping.

9. **USE CARE** when operating on steep grades to maintain proper stability.

10. **ALWAYS** keep the tractor in gear when going down hill. **NEVER** permit tractor to coast with clutch disengaged or with transmission in neutral.

11. **DO NOT** drive too close to the edge of a ditch or creek.

12. **BEFORE** leaving tractor seat **ALWAYS PLACE TRANSMISSION SHIFT LEVER IN NEUTRAL,** disengage P.T.O., set brakes, and stop engine unless specifically instructed in the Operator's Manual of some machine or attachment to do otherwise.

13. **NEVER** start a P.T.O. driven machine without making sure that no one is on it or close to it.

14. **NEVER** permit anyone to examine, clean, service, or adjust the tractor or any equipment operated by it **UNTIL** tractor engine is stopped, **TRANSMISSION SHIFT LEVER IS IN NEUTRAL,** P.T.O. is disengaged, brakes are set, and **ALL** moving parts have stopped.

15. **NEVER** leave equipment in raised position when tractor is parked.

16. **NEVER** leave the tractor unattended without placing **TRANSMISSION SHIFT LEVER IN NEUTRAL,** setting brakes, disengaging P.T.O., stopping the engine, and removing the key.

17. **DO NOT** pull from the rear axle, **PULL ONLY** from the **DRAWBAR** and take up slack in a chain slowly.

18. **DANGER: NEVER, UNDER ANY CIRCUSTANCES, ATTEMPT TO PULL ANYTHING FROM THE ADJUSTABLE UPPER LINK, THE LIFT SHAFT, THE AXLE OR THE LIFT ARMS.** Hitch loads to tractor ONLY at the drawbar except when pulling implements specifically designed for an properly fastened by three point hitch.

19. If the tractor drive wheels are stuck, **BACK OUT** to prevent the tractor from upsetting.

20. Use the **FLASHING WARNING LIGHTS** when traveling on public roads day or night - unless prohibited by law.

21. **ALWAYS** make sure that an S.M.V. emblem is **VISIBLE** from the rear when traveling on public roads.

22. **NEVER** run the tractor engine in a closed building without adequate ventilation, because the exhaust fumes are very injurious to health.

23. **DIESEL FUEL CAN BE DANGEROUS. NEVER** fill fuel tank when engine is running, when engine is hot, while near an open flame or when operator is smoking.

24. **DO NOT** fill fuel tank completely to the top if tractor is to be exposed to sun. Fuel will expand and run over. Wipe up any spilled fuel.

25. Keep a **FIRE EXTINGUISHER** handy at all times.

26. **DO NOT** remove radiator cap until after engine has cooled.

27. **NEVER** stand between tractor and drawn implement while tractor is being backed to hitch.

28. **DO NOT** wear loose-fitting clothing that may be blown or drawn into moving parts.

29. **KEEP** tractor and attachments in good operating condition and keep safety devices in place. Use guards as instructed in Operator's Manual.

30. Provide a **FIRST AID KIT.** Treat all scratches, cuts, etc., with the proper antiseptic immediately.

31. **TRACTOR** and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.

32. **DO NOT** change engine governor settings or over speed engine.

33. **USE** the seat belt when tractor is equipped with the protective frame. Replace seat belt when it becomes worn or frayed.

34. **DO NOT** use a seat belt if tractor is not equipped with roll over protective devices.

35. **ADD** front weight for pulling heavy drawbar loads or mounted tools.

36. **ADD** rear wheel weights for front loader operation.

37. **SET** wheels as wide as practical for the job and for **BETTER** stability.

38. **DRIVE SLOWLY** when pulling heavy wheeled loads, especially if trailing vehicle has no brakes. Towed loads that weight more than the weight of the tractor **SHOULD BE** equipped with an independent braking system.

39. **LONG HAIR** should be tied up short to prevent it from becoming entagled in moving parts.

40. **REPLACE** damaged or lost safety decals immediately.

41. **ALWAYS** lower fully to the ground any unit attached to the draft arms or supported by a remote hydraulic cylinder, or else **BLOCK IT SECURELY** at a workable height before inspecting, adjusting or performing maintenance work.

TAKE TIME FOR SAFETY

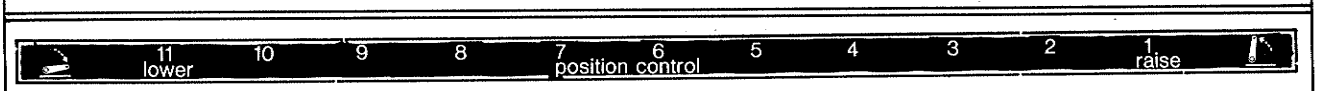
REMEMBER THAT SAFE OPERATION IS NOT ACCIDENT

AVOID ACCIDENTS

BUILT-IN SAFETY FEATURES CAN BE EFFECTIVE ONLY IF PROPERLY MAINTAINED AND UTILIZED.

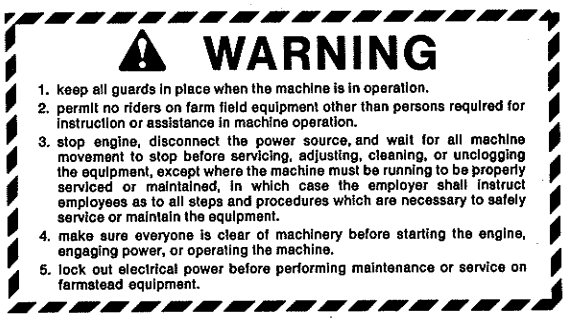
SAFETY AND OPERATIONAL DECALS

CAUTION: The following warning signs are placed at strategic positions on the tractor to provide the operator with a continual reminder of safe operating practices. If they become damaged or lost replace them immediately. They may be obtained from your authorized Dealer. The part number and location of decal on the tractor are listed under each sign.



No. 2097033 - Located on Position Control Lever Quadrant

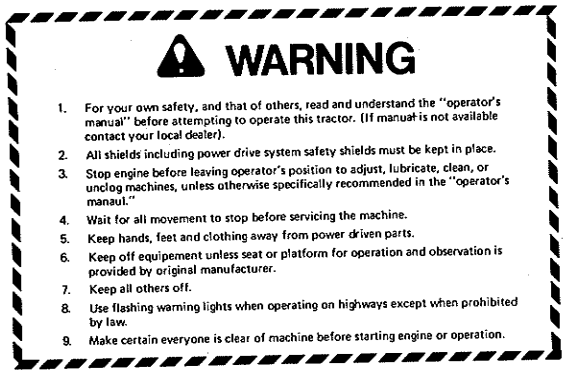
No. 269836 - Located on P.T.O. Shield



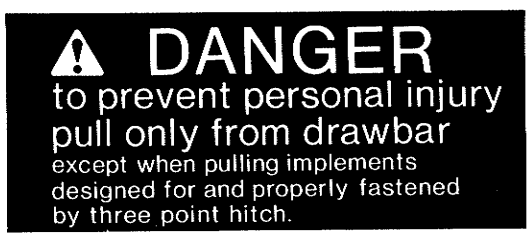
No. 269839 - Located on R.H. Fender

No. 269521 - Located on L.H. Wheel Guard

No. 269803 - Located on rear of R.H. wheel guard facing operator only on tractors equipped with Protective Frame.

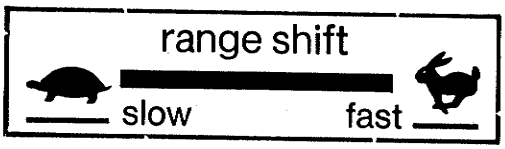


No. 2097123 - Located on L.H. Wheel Guard.



No. 256569 - Located P.T.O. Shield

SAFETY AND OPERATIONAL DECALS

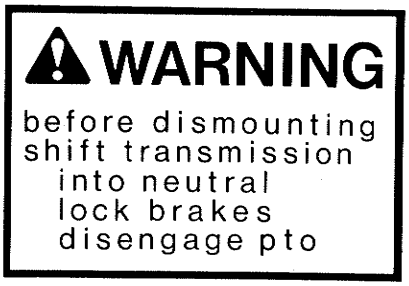


No. 2097034 - Located on Instrument Panel

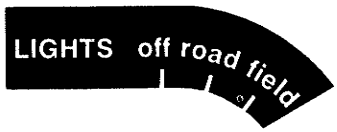
IMPORTANT

Service air cleaner according to instructions contained in the operator's manual. Stop engine,remove and empty dust cup every 10 hours of operation, or more often while operating in extremely dusty conditions.
For maximum engine protection and element life use only filter element part no. 2097035.

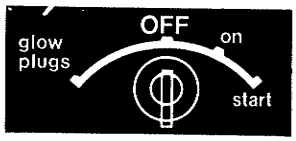
No. 2097122 - Located on Air Cleaner



No. 269387 - Located on R.H. Wheel Guard

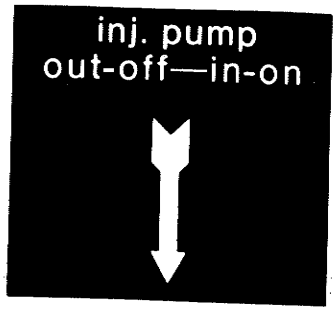


No. 2097048 - Located on Instrument Panel



No. 2097031 - Located on Instrument Panel

No. 267964 - Located on inside surface of optional ROPS R.H. Protective Frame tube facing operator.



No. 2097029 - Located on Shift Cover

MPH @ 2500 R.P.M. WITH 9.5-24 TIRES											P.T.O. R.P.M.
RANGE	LOW					HIGH					540 @
GEAR	1	2	3	4	R	1	2	3	4	R	2326
SPEED	.8	1.2	1.6	2.1	1.6	3.3	4.6	6.1	8.1	6.4	ENG. R.P.M.

No. 2097024 - Located on Instrument Panel on 5020 & 9523 Tractor with 9.5-24 rear tires.

MPH @ 2500 R.P.M. WITH 13.6-16 TIRES											P.T.O. R.P.M.
RANGE	LOW					HIGH					540 @
GEAR	1	2	3	4	R	1	2	3	4	R	2326
SPEED	.8	1.1	1.4	1.9	1.5	3.0	4.3	5.6	7.5	5.9	ENG. R.P.M.

No. 2097025 - Located on Instrument Panel on Model 5020 & 9523 Tractor with 13.6-16 rear tires.

MPH @ 2500 RPM WITH 11.2-24 TIRES											PTO RPM
RANGE	LOW					HIGH					540 @
GEAR	1	2	3	4	R	1	2	3	4	R	2326
SPEED	.9	1.3	1.7	2.2	1.7	3.5	4.9	6.5	8.6	6.8	ENG. RPM

No. 2097192 - Located on instrument panel on Model 5020 & 9523 Tractor with 11.2 x 24 rear tires.

MPH @ 2500 R.P.M. WITH 12.4 -24 TIRES											P.T.O. R.P.M.
RANGE	LOW					HIGH					540 @
GEAR	1	2	3	4	R	1	2	3	4	R	2326
SPEED	1	1.5	1.9	2.8	2.0	4.7	6.7	8.7	13	9.2	ENG. R.P.M.

No. 2097026 - Located on Instrument Panel on Model 5030 & 9528 Tractor with 12.4-24 rear tires.

MPH @ 2500 R.P.M. WITH 13.6-16 TIRES											P.T.O. R.P.M.
RANGE	LOW					HIGH					540 @
GEAR	1	2	3	4	R	1	2	3	4	R	2326
SPEED	.9	1.2	1.6	2.4	1.7	4.0	5.6	7.4	11	7.8	ENG. R.P.M.

No. 2097131 - Located on Instrument Panel on Model 5030 & 9528 Tractor with 13.6-16 rear tires.

Specifications

	MODEL 5020 & 9523	MODEL 5030 & 9528
ENGINE SPECIFICATIONS		
Make	Toyosha	Toyosha
Model	S126	S148
No. of Cylinders	2	2
No. of main bearings	3	3
Bore	3.62" (92 mm)	3.82" (97 mm)
Stroke	3.74" (95 mm)	3.94" (100 mm)
Firing Order	1 - 2	1 - 2
Low Idle RPM	750 - 800 RPM	750 - 800 RPM
High Idle RPM	2650 - 2750 RPM	2650 - 2750 RPM
Rated Speed RPM	2500 RPM	2500 RPM
Piston Displacement	77.1 cu. in. (1263 cm^3)	90.1 cu. in. (1477 cm^3)
Compression Ratio	23:1	23:1
Fuel Injection Pump		
Make	Kiki	Kiki
Model	NP-PE	PES-2K
Injection Timing Static	20^o BTDC	22^o BTDC
Fuel Nozzle Opening Pressure	1710 - 1840 PSI (11 800 - 12 700 kPa)	1710 - 1840 PSI 11 800 - 12 700 kPa)
PERFORMANCE		
Maximum observed P.T.O. horsepower at rated engine speed (Manufacturer's Rating)	21 HP (15.7 kW)	26 HP (19.4 kW)
GENERAL SPECIFICATIONS		
Air Cleaner		
Make	Donaldson	Donaldson
Type	Dry	Dry
Battery		
Make	Kobe	Kobe
Type	Wet	Wet
Voltage	12 V	12 V
Capacity	70 Amp - Hour	70 Amp - Hour
Ground Terminal	Negative	Negative
Brakes		
Type	Internal Expansion	Internal Expansion
Drum - Diameter	5.72" (145.2 mm)	5.72" (145.2 mm)
Clutch - Engine		
Type	Single Plate - Dry	Single Plate - Dry
Disc Diameter	8.46" (215 mm)	8.46" (215 mm)
Material	Molded Asbestos	Molded Asbestos
Differential		
Type	2 - pinion	2 - pinion
Type pinion and ring gear	spiral - helical	spiral - helical
Ratio	4.33:1	3.9:1
Drawbar - 3 Point Hitch		
Height from ground	13.4" (340 mm)	16.1" (410 mm)
Drawbar Thickness	0.87" (22 mm)	0.87" (22 mm)
Hitch Hole Diameter	1.14" (29 mm)	1.14" (29 mm)
Electrical System		
Alternator		
Make	Hitachi	Hitachi
Model	LR115-58	LR115-58
Output	12 V, 15 A	12 V, 15 A

ENGINE SPECIFICATIONS (Cont'd.)

	MODEL 5020 & 9523	MODEL 5030 & 9528
Electrical System (Cont'd.)		
Voltage Regulator		
Make	Hitachi	Hitachi
Model	TRIZ-34	TRIZ-34
Starting Motor		
Make	Hitachi	Hitachi
Model	S12-61	S13-31
Fuse Size	10A, 5A	10A, 5A
Fan		
Type	6 Bladed	5 Bladed
Diameter	12.7" (322 mm)	13.4" (340 mm)
Final Drives		
Type	Spur Gear	Spur Gear
Ratio	4.5:1	4.5:1
Governor		
Type	Flyweight	Flyweight
Make	Kiki	Kiki
Hydraulic Pump		
Type	Gear	Gear
Make	Kayaba	Kayaba
Rotation	Counterclockwise (shaft end)	Counterclockwise (shaft end)
Output	5.44 gal./min. (20.6 litre/min.) @ rated speed	5.44 gal./min. (20.6 litre/min) @ rated speed
Transmission		
Type	Sliding Mesh and Constant Mesh - Spur Gears	Sliding Mesh and Constant Mesh - Spur Gears
Speeds	8 - Forward, 2 - Reverse	8 - Forward, 2 - Reverse
Power Take-Off Single Speed		
Engine Speed versus	**PTO Speed**	**PTO Speed**
Low Idle 750 - 800 PRM	174 - 186 RPM	174 - 186 RPM
Rated 2500 RPM	580 RPM	580 RPM
High Idle 2650 - 2700 RPM	615 - 627 RPM	615 - 627 RPM
Capacities		
Cooling System	5.3 qt. (5.0 litres)	5.3 qt. (5.0 litres)
Fuel Tank	7 gal. (27 litres)	7 gal. (27 litres)
Engine Crankcase		
Oil Change Only	4.2 qt. (4 litres)	4.2 qt. (4 litres)
Oil Change w/Filter	5.0 qt. (4.7 litres)	5.0 qt. (4.7 litres)
Transmission (Hydraulic System)	5.5 gal. (21 litres)	6.7 gal. (25.5 litres)

MODEL 5020 & 9523

Tire Size	9.5 x 24		13.6 x 16		11.2 x 24	
	MPH	km/h	MPH	km/h	MPH	km/h
Gear Speed						
Low First	.8	1.3	.8	1.3	.9	1.4
Low Second	1.2	1.9	1.1	1.8	1.3	2.1
Low Third	1.6	2.6	1.4	2.3	1.7	2.7
Low Fourth	2.1	3.4	1.9	3.1	2.2	3.5
High First	3.3	5.3	3.0	4.8	3.5	5.6
High Second	4.6	7.4	4.3	6.9	4.9	7.9
High Third	6.1	9.8	5.6	9.0	6.5	10.5
High Fourth	8.1	13.0	7.5	12.1	8.6	13.8
Low Reverse	1.6	2.6	1.5	2.4	1.7	2.7
High Reverse	6.4	10.3	5.9	9.5	6.8	10.9

MODEL 5030 & 9528

Tire Size	12.4 x 24		13.6 x 16	
	MPH	km/h	MPH	km/h
Gear Speed				
Low First	1.0	1.7	.9	1.4
Low Second	1.5	2.3	1.2	1.9
Low Third	1.9	3.1	1.6	2.6
Low Fourth	2.8	4.5	2.4	3.8
High First	4.7	7.6	4.0	6.4
High Second	6.7	10.8	5.6	9.1
High Third	8.8	14.1	7.4	11.9
High Fourth	14.0	22.6	11.0	17.6
Low Reverse	2.0	3.2	1.7	2.7
High Reverse	9.2	14.8	7.8	12.5

SPECIFICATIONS (Cont'd.)

	MODEL 5020 & 9523	MODEL 5030 & 9528
GENERAL DIMENSIONS		
Height to top of Exhaust Stack	75.6" (1920 mm)	81.9" (2080 mm)
Height to top of Hood	42.7" (1085 mm)	
Height to top of Steering Wheel	51.3" (1303 mm)	53.7" (1365 mm)
Wheel Base	59.8" (1519 mm)	61.8" (1570 mm)
Minimum Width	48.0" (1219 mm)	53.5" (1360 mm)
Overall Length	98.9" (2512 mm)	100.4" (2550 mm)
Clearance Under Front Axle	12.6" (320 mm)	14.5" (368 mm)
Clearance Under Rear Axle Housing	14.0" (356 mm)	15.6" (396 mm)
Approx. Shipping Weight	1825 lb. (830 kg)	2100 lbs. (955 kg)

TIRES

Tire Size - Front		Tire Size - Rear	
Size	Ply	Size	Ply
4.00 x 12	4	9.5 x 24	4
20 x 8.00-10	4	11.2 x 24	4
		13.6 x 16	4

WHEEL TREAD (Rear

Tire Size	Wheel Tread
9.5 x 24	37.0 (940 mm) and 41.7" (1059 mm)
11.2 x 24	
	(Front)
4.00 x 12	37.4 (950 mm) and 44.1 (1120 mm)

TIRE PRESSURE

Front Size	Pressure Min.	Max.
4.00 x 12	20 PSI (138 kPa)	48 PSI (331 kPa)
20 x 8.00-10	8 PSI (55 kPa)	24 PSI (165 kPa)

Rear Size	Pressure Min.	Max.
9.5 x 24	12 PSI (83 kPa)	18 PSI (124 kPa)
11.2 x 24	12 PSI (83 kPa)	18 PSI (124 kPa)
13.6-16	9 PSI (62 kPa)	14 PSI (96 kPa)

TIRES

Tire Size - Front		Tire Size - Rear	
Size	Ply	Size	Ply
5.00 x 15	4	12.4 x 24	4
20 x 8.00-10	4	13.6 x 16	4

WHEEL TREAD (Rear)

Tire Size	Wheel Tread
12.4 x 24	40.9" to 62.5" (1040 to 1588 mm)
13.6 x 16	50.4" (1280 mm)
	(Front)
5.00 x 15	40.9" to 51.1" (1040 to 1298 mm)
20 x 8.00-10	42.9" to 53.1" (1090 to 1348 mm)

TIRE PRESSURE

Front Size	Pressure Min.	Max.
5.00 x 15	20 PSI (138 kPa)	40 PSI (276 kPa)
20 x 8.00-10	8 PSI (55 kPa)	24 PSI (165 kPa)

Rear Size	Pressure Min.	Max.
12.4 x 24	12 PSI (83 kPa)	18 PSI (124 kPa)
13.6-16	4 PSI (60 kPa)	14 PSI (100 kPa)

The Company reserves the right to make changes on the above specifications or add improvements at any time without notice or obligation.

CAUTION: Shields have been removed in some photos for clarification. DO NOT OPERATE TRACTOR UNLESS ALL SHIELDS ARE IN PLACE.

NOTE: Some illustrations in this manual show units with optional equipment installed. This optional equipment may be purchased from your local authorized dealer.

Lubrication and Service

T-65471

WARNING: Never permit anyone to examine, clean, service, or adjust the tractor or any equipment operated by it UNTIL tractor engine is stopped, brakes are set, transmission shift lever is in neutral, P.T.O. is disengaged, and all moving parts have stopped.

The following section deals with lubricating and servicing your tractor. Be sure to follow the recommended time intervals and use the type of lubricants that are recommended.

The few dollars you may save by using cheaper lubricants or not following the recommended change intervals may cost you many dollars later on.

In order for your tractor warranty to be valid the recommended time intervals must be followed and the recommended types of lubricants must be used!

TIME INTERVAL CHART FOR SERVICE ITEMS

10 HOURS OR DAILY

Air Cleaner Cup - Clean
Engine Cooling System - Check coolant level
Engine Oil Level - Check
Front Axle and Steering Linkage - Grease 7 fittings
3-Point Hitch - Grease 3 fittings and lubricate 8 bushings
Fuel Sediment Bowl - Check and clean if needed.
Transmission Oil Level - Check (Includes oil for transmission and hydraulic lift system)

50 HOURS OR WEEKLY

Engine Oil and Filter - first change at 50 hours on a new tractor
Transmission and Hydraulic Oil (New Tractor) - Change oil and clean strainer first time at 50 hours
Fuel Filter (New Tractor) - change fuel filter first time at 50 hours
Clutch - Brake Shaft Assembly - grease 3 fittings
Battery - Check electrolyte level

100 HOURS

Engine Oil and Filter - Change (after first change)
Injection Pump Oil Level - Check
Air Cleaner Element - Clean

200 HOURS

Crankcase Breather Cap - Remove and Clean
Transmission and Hydraulic Oil - Change oil and clean strainer (after first change)
Injection Pump Oil - Change

400 HOURS

Fuel Filter - change (after first change)

500 HOURS

Front Wheel - Bearings - Clean and repack

1000 HOURS

Replace transmission and hydraulic oil strainer

YEARLY

Air Cleaner Element - Change

2000 HOURS - 2 YEARS

Engine cooling system - drain and refill

LUBRICATION AND SERVICE GUIDE			
SUBJECT	**SERVICE OR LUBRICANT**	**INTERVAL**	**CAPACITIES**
Engine Oil and Oil Filter	CD (DS Series 3) Class Oil	Check oil level every 10 hrs. or daily. On a new tractor change oil and filter after the first 50 hrs. of operation. After this initial change, oil and filter should be changed every 100 hrs.	4.2 qts. (4 litres) w/o filter 5 qts. (14.7 litres) w/filter.
Air Cleaner Cup	----------	Clean every 10 hrs. or daily	----------
Air Cleaner Element	New element from your Authorized Dealer.	Clean as required - replace every year or after six cleaning, whichever occurs first.	----------
Engine Cooling System	Permanent type anti-freeze	Check level every 10 hours or daily - fill to within 1/2" (13 mm) of radiator neck. Do not overfill. Drain and refill every 2 yrs.	Approx. 5.3 qts. (5 litres)
Transmission - Hydraulic Oil & Strainer	Allis-Chalmers Power Fluid 821.	Check level every 10 hrs. or daily. Change oil and clean strainer at first 50 hrs. of operation and every 200 hrs. thereafter. Replace strainer when damaged or after 1000 hrs. of operation.	5.5 gal. (21 litres) in Model 5020 & 9523, 6.7 gal. (25.5 litres) in Model 5030 & 9528.
Injection Pump	CD (DS Series 3) Class Oil	Check level every 100 hrs. Change oil every 200 hrs.	3.7 fl. oz. (110 ml)
Sediment Bowl	----------	Check and clean if needed every 10 hrs. or daily.	----------
Fuel Filter	Filter from your authorized Dealer.	Replace after first 50 hrs. of operation and every 400 hrs. thereafter.	----------
Battery	Clean distilled water only.	Check level of electrolyte solution once a week (50 hrs.) - add distilled water when necessary.	----------
Front Wheel Bearings	No. 2 wheel bearing grease	Clean and repack every 500 hrs. or oftener in extremely wet or muddy conditions. Check and adjust the wheel bearings periodically.	----------
Front Axle	Multi-purpose grease	Lubricate Daily (every 10 hrs. (7 fittings)	----------
3-Point Hitch	Multi-purpose grease	Lubricate Daily (every 10 hrs. (3 fittings)	----------
Clutch - Brake Shaft Assembly	Multi-purpose grease	Lubricate Weekly (every 50 hrs. (3 fittings)	----------

FUELS

FOR ECONOMY AND PERFORMANCE USE FUELS SPECIFIED FOR YOUR ENGINE

Fuel used in the Diesel engine must have certain qualities in order to ignite and burn at the proper temperature and the proper rate. Experience has shown that the fuel best suited, closely follows these specifications.

Gravity (API)	30 - 35
Viscosity Saybolt Universal @ 100° F. (38° C.)	30 - 40
Flash (Min.)	150° F. (66° C.)
Diesel Index	48.5 - 65.5
Cetane Number	46 - 60
Pour Point	0° F. (-18° C.)
98% Recovery	700° F. (371° C.)
Sediment and Water	Trace
Ash Maximum	0.02%
Conradson Carbon Maximum	0.03%
Sulphur Maximum	0.5%

Number 2 high speed diesel fuels generally meet the above specifications.

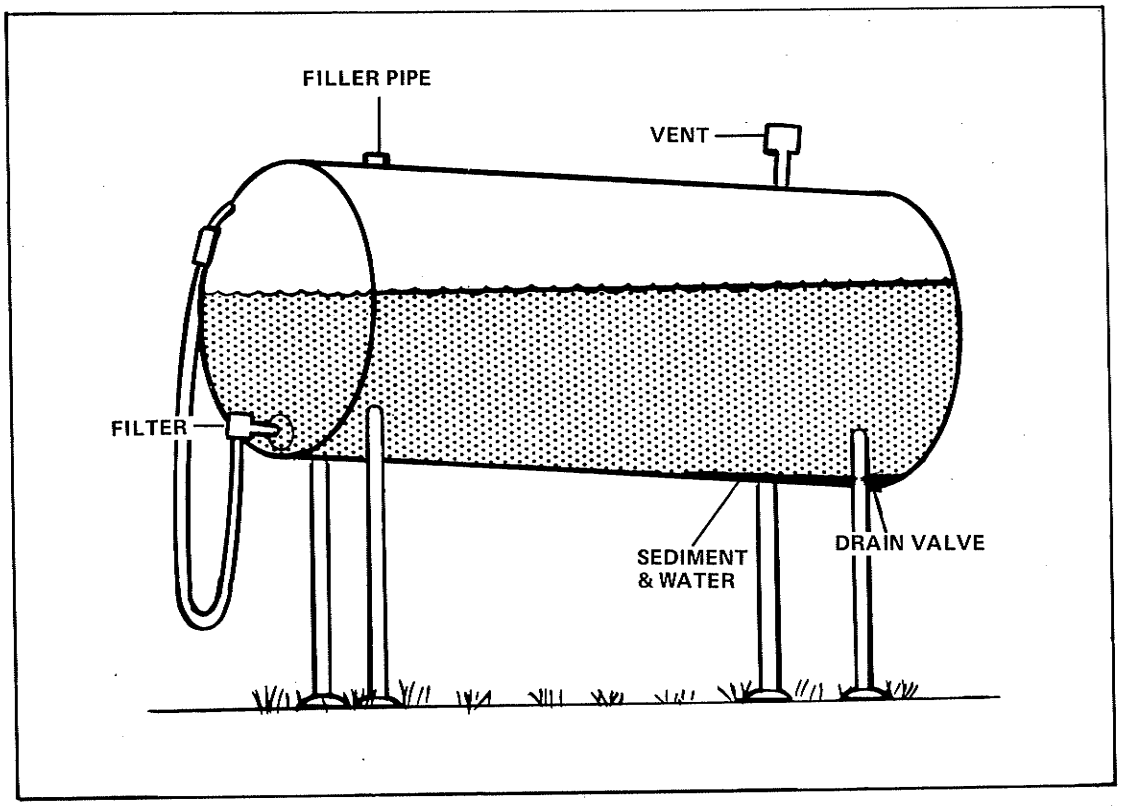
Some of the more desirable high speed diesel fuels do not have a low enough pour point for below zero operation, and cause filter plugging, which in turn causes hard starting. In this event, a winter grade fuel of the same type should be obtained.

RULES FOR HANDLING FUELS

No Fuel is satisfactory for use if it is dirty. A few small pieces of dirt can cause costly damage to the fuel injection pump, which is built of closely fitted precision parts.

The following rules should cover the handling of fuel before it reaches the fuel injection pump.

1. Do not handle fuel in open containers where dust is blowing around.
2. Do not use waste or linty rages around fuel containers or injection equipment.
3. Clean all storage tanks at regular intervals.
4. If pumps are used to bring fuel from storage tank to tractor, keep covered with dust proof covers when not in use.
5. When emptying a drum or storage tank, agitate as little as possible, and leave approximately one inch of fuel in bottom of tank or drum.
6. Keep all fuel handling equipment such as measure, funnels, containers, etc. scrupulously clean, and keep them covered when not in use. Cleanliness prevents difficulty.



FUEL STORAGE

The importance of proper fuel storage cannot be too strongly stressed. Storage tanks, drums or portable service tanks must be free from rust, scale sediment or any other foreign matter which will contaminate the fuel. Contaminated fuel will clog the fuel filters and eventually damage the fuel injection pump and fuel nozzles.

The most practical fuel storage seems to be an elevated tank with an open-sided roof, high enough for air to circulate. This protects the fuel tank from rain or snow, and hot sun rays. Fuel should be stored away from buildings and in shade, if possible.

The fuel storage tank should be installed so that one end of tank is slightly lower and equipped with a drain valve at the lower end for draining off the sediment and water. The tank should also be provided with a hose, equipped with a self-closing nozzle to prevent the entrance of dirt. The fuel tank size should be determined to provide that fuel will not be stored for periods of over three months.

A portable storage tank provides the best method of storing fuel on the job. Since all storage tanks are subject to condensation, it is very important that a sediment sump be provided in the bottom of the tank so that water and sediment can be drained daily.

A protable storage tank should be provided with a pump, so the fuel can be pumped into the tractor fuel tank with a minimum of handling. Draining fuel from supply tank into the buckets or other containers, then pouring it into the tractor fuel tank is not a good method of handling fuel.

Where conditions are such that drums must be used to supply fuel, it is advisable to have enough drums to allow sufficient time for the fuel to settle before being used. It is also advisable to use a pump and pump the fuel from the drum or container, rather than drain it from bottom of the fuel container.

The fuel thus left in a number of drums can be collected into one drum and used after the usual time allowed for settling. In this manner the sediment and foreign matter will be disposed of and no fuel will be wasted.

Whenever drums are used for fuel storage, they should be covered, or placed under shelter so that the fuel will not become contaminated by water, which will enter through the filler plugs when it rains, even though the plugs are tight.

Allow Time for Fuel to Settle

Fuel should be allowed to settle for several hours after the fuel company has delivered the fuel before it is used in the tractor fuel tank. This will allow any sediment and water to settle to the bottom of the storage containers and permit cleaner fuel to be used in the tractor fuel tank.

Fill Tractor Fuel Tank at End of Day

The fuel tank on the tractor should be filled at the end of the day's run, rather than at the start of the day's run, since more water will condense in an empty fuel tank than in a full fuel tank. Therefore, this practice will reduce the amount of water contamination of the fuel.

Purchase New Fuel Each Season

The fuel companies provide fuel tailored to meet the existing weather conditions. These fuels are changed at the start of the predominant seasons according to regional weather trends and roughly correspond to spring, summer, fall and winter, making an average of four changes per year.

Winter fuels are tailored to give ease of starting for cold weather. Summer fuel may be somewhat heavier than winter fuels resulting in slightly better fuel economy and power. Spring and fall fuels are blended in between winter and summer fuels.

Summer fuel used in winter or winter fuel used in summer may cause problems in the engine operation. For example, winter fuel used for heavy work in the spring season may result in less power and higher fuel consumption.

For these reasons, an effort should be made to purchase fuels in such quantity that they are not carried over into succeeding seasons.

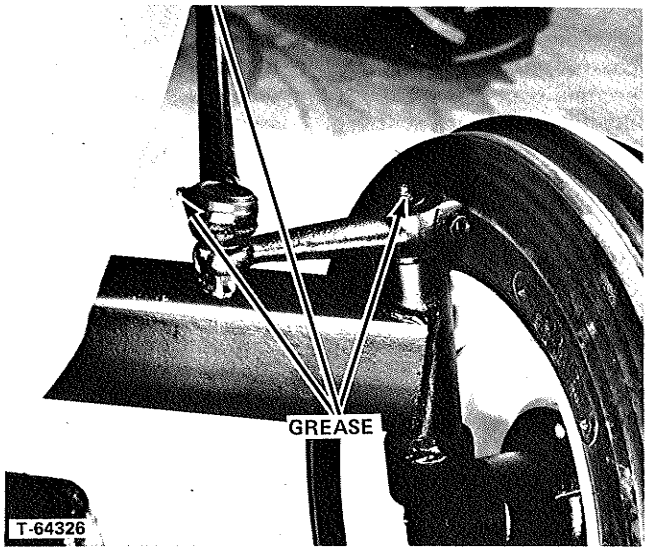


FIGURE 1

WARNING: NEVER ATTEMPT TO CLEAN LUBRICATE OR ADJUST THIS MACHINE WHILE IT IS IN MOTION OR ENGINE IS RUNNING.

FRONT AXLE (Figures 1, 2 & 3A)

Lubricate daily (10 hours) with multi-purpose grease seven lube fittings one on each spindle support end, one on the axle front pivot, two on each tie rod.

3-POINT HITCH (Figure 3)

Lubricate daily (10 hours) with multi-purpose grease, Lube three fittings one at upper link and two on R.H. lift link. Lubricate bushings by applying a thin film of light weight oil to ends of draft arms (4), upper link (2) and top ends of lift links (2). (8 total).

CLUTCH – BRAKE SHAFT ASSEMBLY (Figure 3A)

Lubricate weekly (50 hours) with multi-purpose grease. Lube three fittings, one on clutch pedal, one on pedal shaft support and one on R.H. pedal.

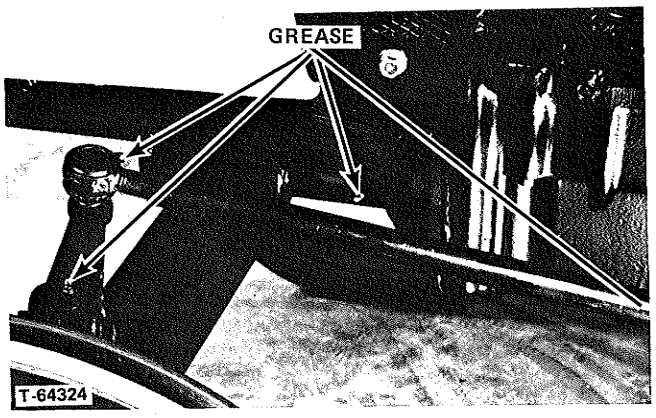


FIGURE 2

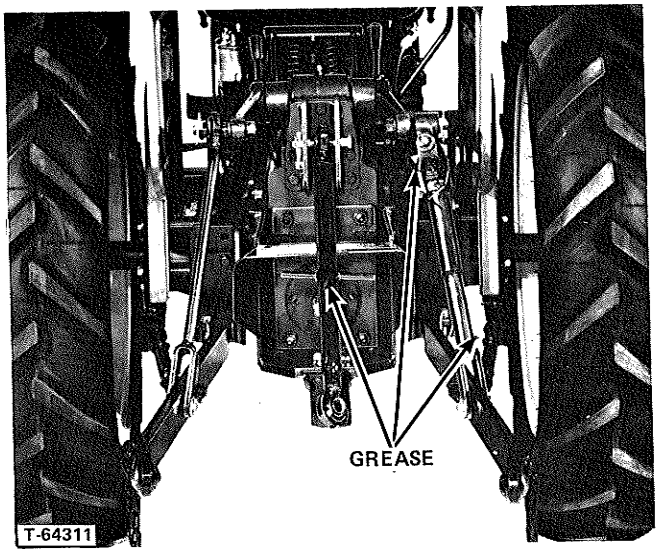


FIGURE 3

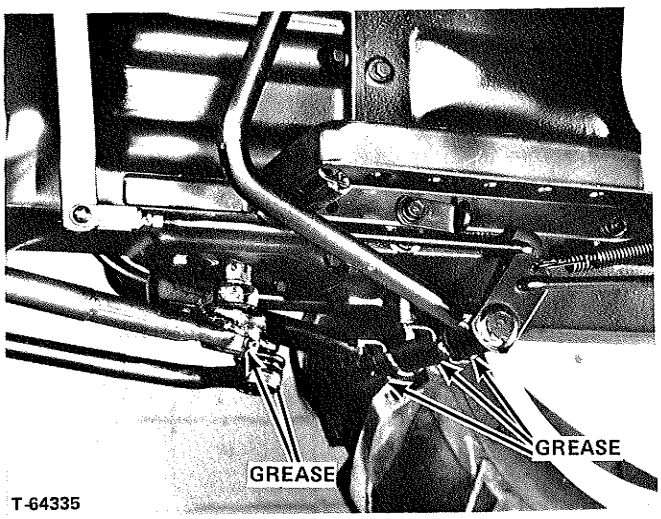


FIGURE 3A - L.H. Side

ENGINE COOLING SYSTEM (Figures 4, 5, & 6)

Check the cooling system daily (10 hours) for correct coolant level. Fill to within 1/2" (13 mm) of the radiator neck. DO NOT OVERFILL.

WARNING: DO NOT remove radiator cap while engine is hot. Radiator is pressurized; if opened while hot, steam and boiling liquid will be sprayed out, which may injure you and which will cause excessive loss of coolant.

The cooling system is filled at the factory with a permanent-type anti-freeze solution which protects cooling system to -20° F. (-29° C.).

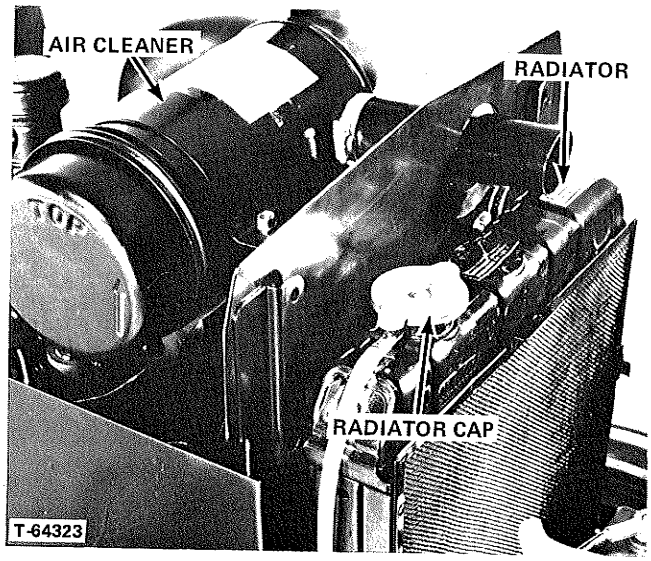


FIGURE 4 - Hood Opened for Clarity

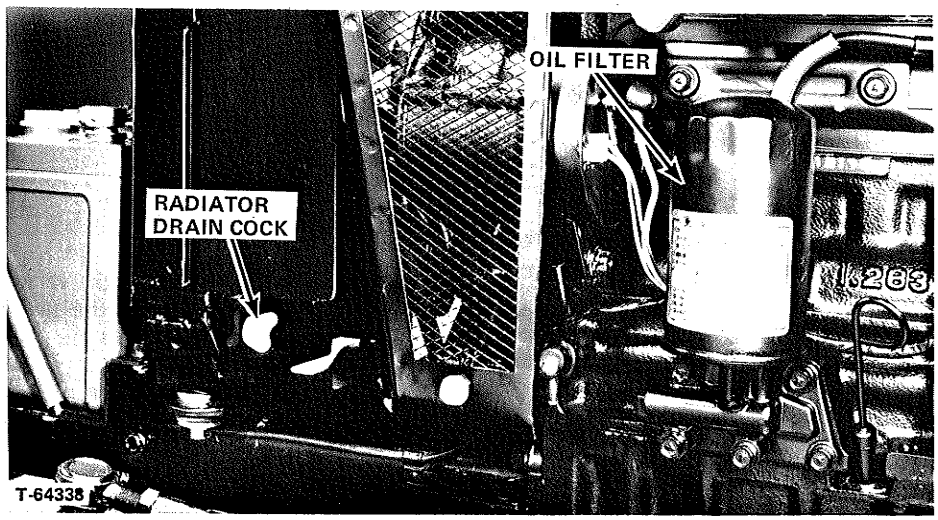


FIGURE 5 - L.H. Side - Hood Raised

A drain cock is located at left hand rear of radiator and drain plug at right hand side of engine block. Open drain cock and remove drain plug when draining cooling system, and remove radiator cap to prevent air locking which will retard draining.

In warm areas where anti-freeze is not needed to prevent freezing, it is recommended that the cooling system consist of at least one-third anti-freeze solution to prevent cooling system rust and corrosion. The rust and corrosion inhitibors in anti-freeze lose their effectiveness after approximately two years time. Therefore, the cooling system should be drained and refilled with the proper amount of new anti-freeze solution every two years. **IMPORTANT:** The use of a 100% anti-freeze solution in the cooling system is not recommended since a certain amount of water is necessary to make the anti-freeze effective. Always use a permanent-type anti-freeze.

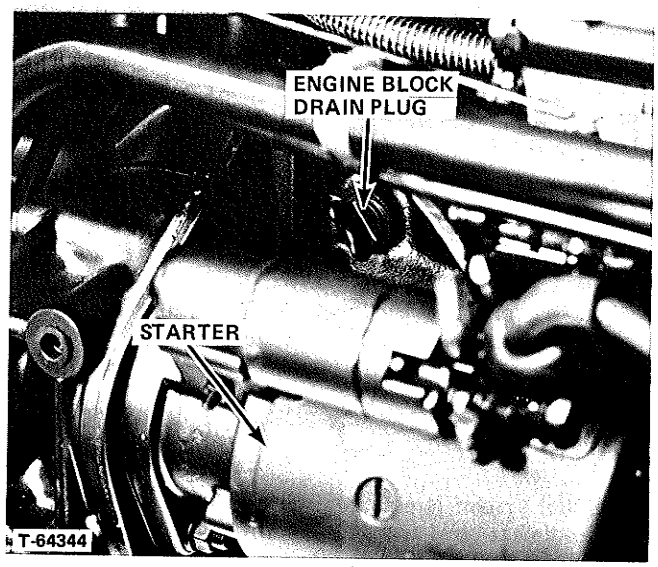


FIGURE 6 - R.H. Side

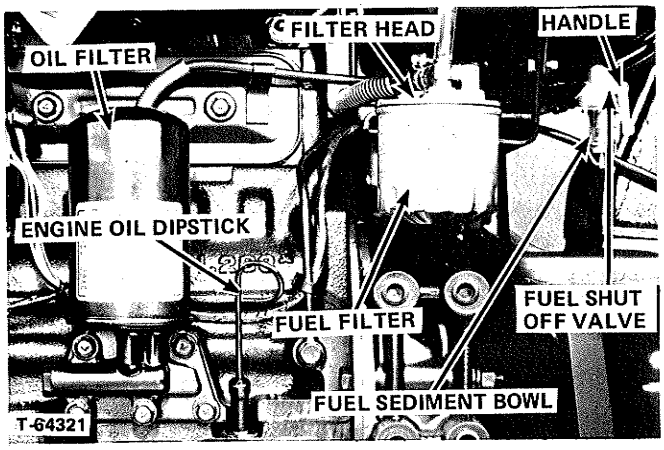


FIGURE 7 - L.H. Side

CHECKING ENGINE OIL LEVEL (Figures 7 & 8)

Check the engine oil level daily (10 hours).

The dipstick is marked on both sides for reading the oil level with the engine stopped.

Before checking oil level allow at least 10 minutes for oil to return to sump after stopping engine.

Do not overfill. Use oils of the CD (DS Series 3) service classification only. Use the following viscosities for the lowest expected temperature during time oil will be in crankcase.

DO NOT use multi-viscosity oils in this diesel engine. (See Special Lubrication Information).

ENGINE OIL (Expected Temperature During Time Oil Will Be in Crankcase)	RECOMMENDED OIL VISCOSITY
Above 32° F. (0° C.)	SAE 30
0° to 32° F. (-18° to 0° C.)	SAE 20-20W
0° and Below (-18° C. and below)	SAE 10W

Drain and refill crankcase with fresh clean oil after the first 50 hours of operation. After that, every hundred hours. Drain plug is located at bottom of crankcase (Figure 8). One grade lighter oil, than specified, should be used while breaking in a new or rebuilt engine.

ENGINE OIL FILTER (Figure 7)

Replace the oil filter at the first 50 hours of operation when the engine oil is changed and every 100 hours thereafter. Replace only with a filter provided specifically for your engine.

ENGINE FUEL SEDIMENT BOWL AND FILTER (Figure 7)

The fuel system is equipped with a fuel shut-off valve, a fuel sediment bowl and a fuel filter located at the L.H. side of the fuel tank. See Figure 7.

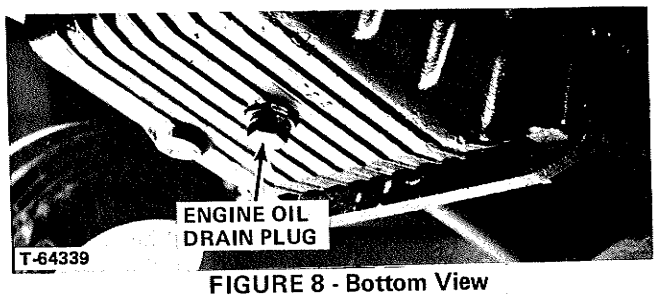


FIGURE 8 - Bottom View

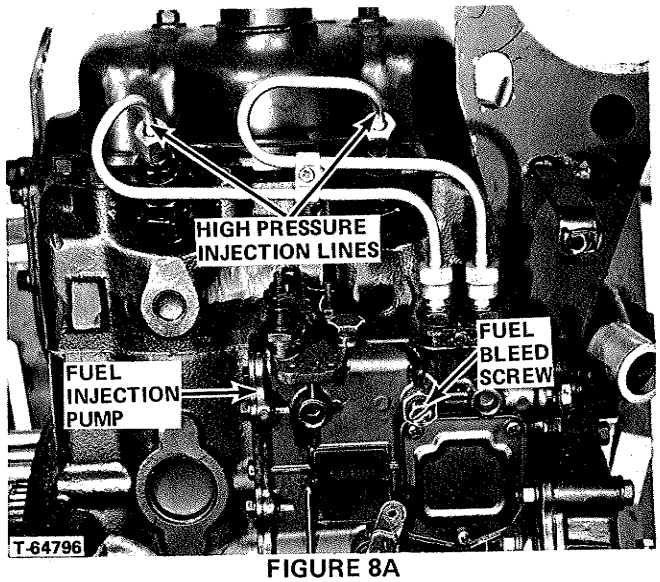


FIGURE 8A

The purpose of the fuel shut-off valve is to stop the flow of fuel from the tank when the sediment bowl or filter is removed or when fuel lines are removed. To shut-off the fuel, rotate the fuel shut-off valve handle upward to the horizontal position. To turn on the fuel, rotate the valve handle downward to the vertical position.

The purpose of the sediment bowl is to filter out sediment and water from the fuel before it enters the fuel filter. Check the sediment bowl daily. If it contains sediment or water close the fuel shut-off valve, loosen the screw at the bottom of the bowl and remove the glass sediment bowl, the gasket and the screen above it. Thoroughly clean the screen, gasket and bowl and replace the parts in the same position from which they were removed. Before tightening the screw under the bowl rotate shut-off valve handle downward to turn on fuel and fill sediment bowl, then tighten screw under bowl securely. Before attempting to start the engine be sure to follow the procedure for bleeding air from the fuel system given below.

If dirt, sediment or water is found in the filter bowl each day, it indicates the fuel is contaminated and the method of handling and storage of fuel should be improved. If the fuel is clean, very little sediment or water will be found in the sediment bowl and the cleaning period may be extended accordingly.

The purpose of the fuel filter is to remove sediment and small abrasive particles from the fuel before it enters and damages the fuel injection pump. On a new engine the first fuel filter should be removed and replaced at the first

50 hour engine oil change. Thereafter, the filter should be changed at every 400 hours of operation. To replace filter:

1. Shut-off the fuel at the sediment bowl by turning the shut-off valve lever up to the horizontal.

2. Wipe all dirt from the fuel filter element and the filter head. Screw out the filter element and discard element and gasket.

3. Install a new filter element and new gasket obtained from your authorized dealer. Before tightening filter in place, turn on the fuel at the fuel shut-off valve until new filter is filled with fuel, then securely hand tighten filter into filter head. Before attempting to start the engine be sure to follow the proceedure for bleeding air from the fuel system, given below.

   Poor fuel handling and storage facilities will decrease fuel filter life and require replacement more frequently than every 400 hours. When abnormal loss of speed and/or engine power is observed check and clean fuel sediment bowl and screen. If loss of power continues, replace the fuel filter element. To continue operating with a plugged filter may allow dirt to be forced through and cause severe damage to the fuel injection pump.

TO BLEED AIR FROM THE FUEL SYSTEM (Figure 16)

Each time the sediment bowl is cleaned or the fuel filter replaced bleed the air from the fuel system as follows:

1. Make sure the fuel shut-off valve handle is rotated vertically downward for full fuel flow.

2. Using a small wrench (not a screwdriver) turn the small hex head bleed screw on the R.H. side of the fuel injection pump 1-1/2 to 2 turns outward (counterclockwise). DO NOT fully remove the screw. See Figure 8-A.

3. Allow air bubbles and fuel to drain from the bleed screw until all signs of air bubbles disappear and fuel only drains out, then tighten bleed screw securely. **IMPORTANT,** DO NOT turn engine over or attempt to start it while bleed screw is loose.

4. Start the engine. If engine fails to start after a reasonable cranking period, there may be some air bubbles in the high pressure injection lines. Partially loosen the high pressure lines where they attach to injector nozzles and turn engine over several times. Tighten lines and start engine.

IMPORTANT: DO NOT allow engine to run out of fuel To do so may seriously damage the fuel injection pump. Keep track of the fuel supply in the tank and when it gets low stop engine until tank is refilled.

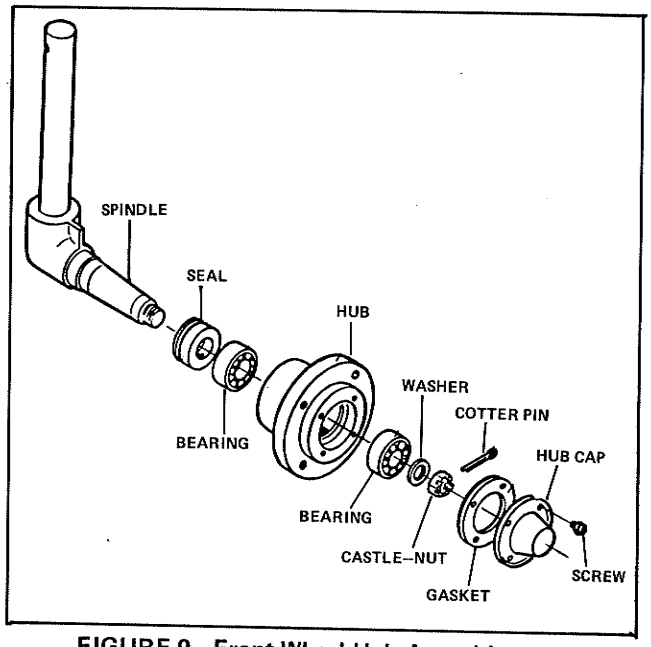


FIGURE 9 - Front Wheel Hub Assembly

FRONT WHEEL BEARINGS (Figure 9)

Remove, clean and repack the front wheel bearings with grease every 300 hours of operation or once a year. In extremely wet or muddy conditions service the bearings more often. Always replace the seals when repacking the bearings.

To adjust the wheel bearings proceed as follows:

1. Tighten the castle nut carefully while slowly rotating the wheel by hand until a slight bearing drag can be felt.

2. Check alignment of the cotter pin hole in the spindle with the notches in the castle nut and back up the nut just enough to make the cotter pin hole align with the first notch in the nut and install a new cotter pin. **NOTE:** If the cotter pin hole in the spindle aligns directly with a notch in the nut at the end of step 1, above, rotate the nut backward until the next notch lines up with the cotter pin hole and install the pin. The bearings should be held in place but not preloaded by the castle nut.

3. Spread the cotter pin to make sure that it cannot work out and also does not drag on the hub cap.

4. Install hub cap.

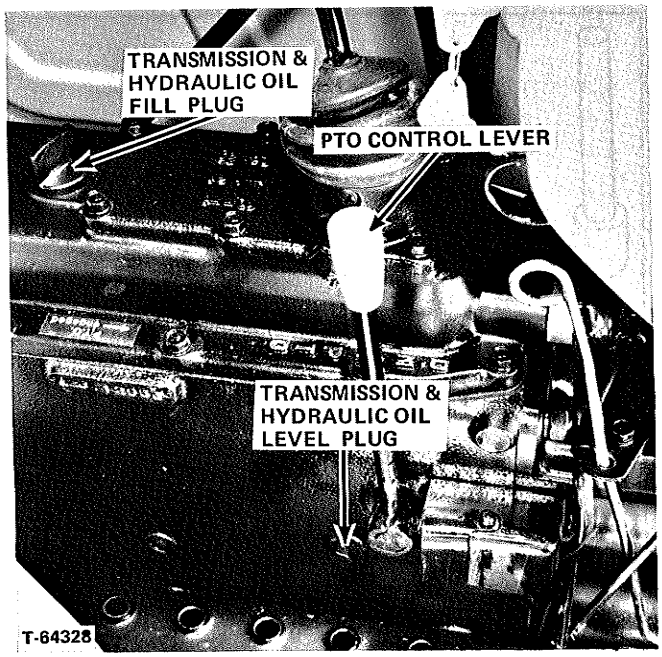


FIGURE 10 - R.H. Side

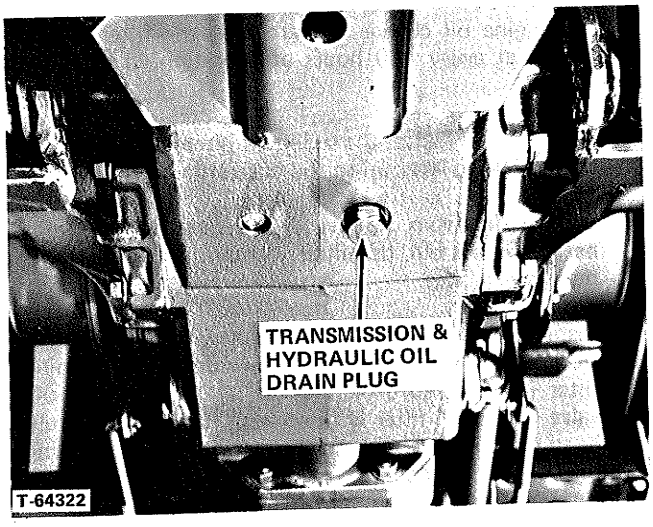


FIGURE 11 - Bottom View

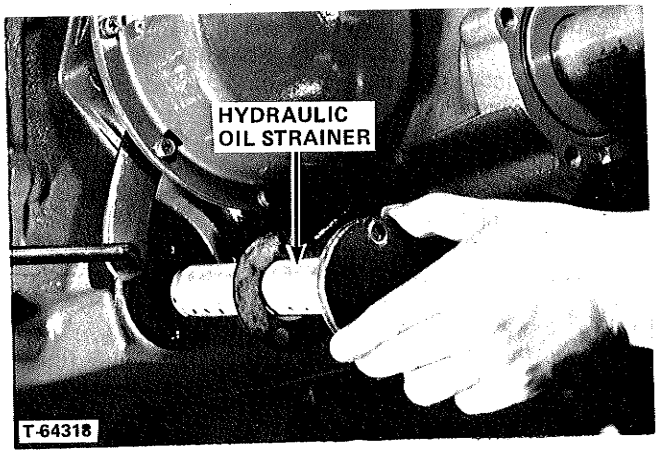


FIGURE 12 - L.H. Side - Model 5020 & 9523

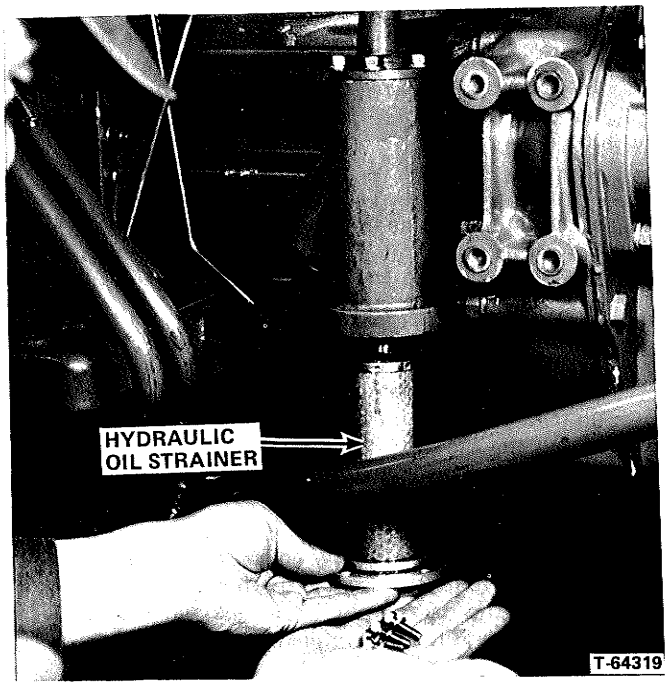


FIGURE 12A - R.H. Side - Model 5030 & 9528

TRANSMISSION & HYDRAULIC SYSTEM OIL LEVEL (Figures 10 and 11)

The transmission oil is also used to operate the hydraulic system of the tractor. The oil should be kept clean and up to level at all times.

There is an oil level plug on the R.H. side, at rear of P.T.O. control lever, of transmission. (Figure 10). Maintain the oil to level plug. Check oil level every 10 hours or daily when tractor engine has been stopped for at least five (5) minutes and lift arms are in lowered position.

The oil fill plug is located directly to rear of transmission shift lever (Figure 10). Fill with Allis-Chalmers Power Fluid 821.

TRANSMISSION, HYDRAULIC SYSTEM OIL & STRAINER (Figures 12 and 12A)

The transmission and hydraulic oil should be changed after the first 50 hours of operation and every 200 hours thereafter. Also clean the hydraulic strainer at this time.

1. Remove drain plug and drain oil from the transmission and hydraulic sumps (approximately 5.5 gals. (21 litres) in Model 5020 & 9523, 6.7 gal. (25.5 litres) in Model 5030 & 9528. (Figure 11).

   Remove hydraulic oil strainer and clean it. If hydraulic oil strianer is deformed or damaged, install a new strainer. Model 5020 & 9523. See Figure 12, Model 5030 & 9528, See Figure 12A.

   NOTE: Replace strainer after each 1000 hours of operation.

2. Install and tighten drain plug and refill the transmission and hydraulic sump with approximately 5.5 gal. (21 litres) of Allis-Chalmers Power Fluid 821 oil. Start engine and operate for 3 minutes at 1/2 throttle this will allow pump to fill the hydraulig system. Stop engine and wait five (5) minutes and then check oil level.

   The oil should be level with the level plug. If not, add enough oil to bring it up to the level plug.

BATTERY (Figure 13)

The battery is mounted in a battery tray in front of the radiator. To service unlatch the hood and raise.

Check level of the electrolyte solution in batteries at least once a week (50 hours) to make sure it is at the proper level. The electrolyte level should be maintained up to the bottom of the split ring indicator in each cell. Never add anything to the battery solution except clean distilled water. Clean containers and filling equipment must be used.

WARNING: Keep all open flame away from batteries, as an explosive gas is liberated when battery is being charged. Use caution to prevent sparks from short circuiting when connecting or disconnecting booster cables.

In cold weather, add water to batteries only prior to operating the engine so that the charging will mix the electrolyte and water to prevent freezing. A fully charged battery will not freeze in cold temperature, but, if only partly charged, will freeze and be damaged, even at temperatures only slightly below freezing. Weekly readings of the specific gravity of each cell should be taken with a battery hydrometer. The specific gravity readings indicate the charge condition of the battery as follows:

1.260 Full Charge
1.210 Half Charge
1.150 Discharged

Return the electrolyte solution to the cell from which it was taken. Keep the battery and terminals clean. If the terminals become corroded, or if the battery becomes acid soaked, wash with a mixture of baking soda and water. The vent plugs must be in place when cleaning the batteries. Check the gas escape holes in vent caps to make sure they are open.

If batteries are removed from tractor, disconnect the negative ground cables from battery terminals first. Upon reinstalling batteries, connect the ground cables last and connect to negative terminal of batteries. The battery retainer should be in place and tightened snugly to prevent batteries from damage caused by vibration.

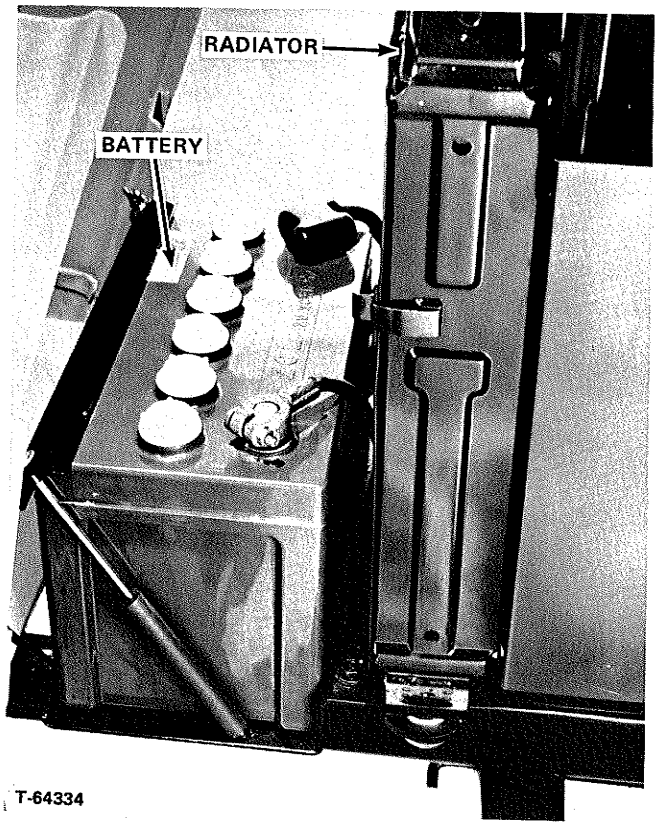


FIGURE 13 - Hood Open for Clarity

In the event the tractor is not being used for a long period of time, it is advisable to remove the batteries, have them fully charged and stored in a basement or some similar place where the temperature will be as low as possible. but above freezing. Do not place batteries directly on concrete floor during storage. Separate batteries from concrete floor with wood strips to prevent batteries from discharging.

WARNING: When using a booster battery or auxiliary starting power as a starting aid, attach the cables as follows:

1. Attach the positive cable between the positive terminal of the discharged tractor battery and the positive terminal of the booster battery or auxiliary starting power.

2. Attach negative cable to the negative terminal of the booster battery or auxiliary starting power. DO NOT CONNECT OTHER END OF NEGATIVE CABLE TO NEGATIVE TERMINAL OF DISCHARGED TRACTOR BATTERY.

3. Attach other end of negative cable to tractor frame or other good source of ground away from discharged batteries. This is a preventative measure to avoid a spark, which could cause a battery explosion.

4. Disconnect booster battery or auxiliary starting power cables in exact reverse order from steps above.

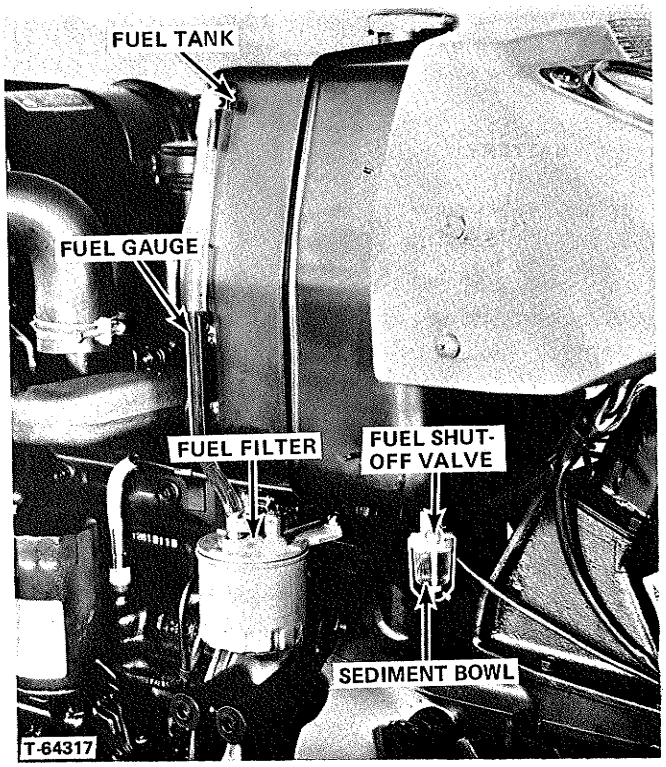


FIGURE 14

FUEL TANK (Figure 14)

The tractor is equipped with a fuel tank located just forward of instrument panel. Fill the fuel tank at the end of each day's operation. This will help to prevent condensation and moisture from collecting in the fuel system. Excessive moisture in the fuel system clogs fuel filter and may damage fuel injection equipment.

There is a fuel shut-off valve and sediment bowl located at the bottom of the fuel tank. Check sediment bowl daily for excessive sediment and clean if necessary.

WARNING: Diesel fuel can be dangerous. Never fill fuel tank when engine is running, when engine is hot, while near an open flame, or when operator is smoking. DO NOT OVERFILL TANK.

AIR CLEANER – DRY TYPE (Figure 15)

The engine is equipped with a dry-type air cleaner with a removable filter element that can be cleaned and reused. Proper servicing of the air cleaner will greatly increase the period between engine overhauls and will reduce downtime. Because some engines operate constantly in a dusty atmosphere and others operate in relatively clean air, each engine air cleaner will require servicing at different intervals.

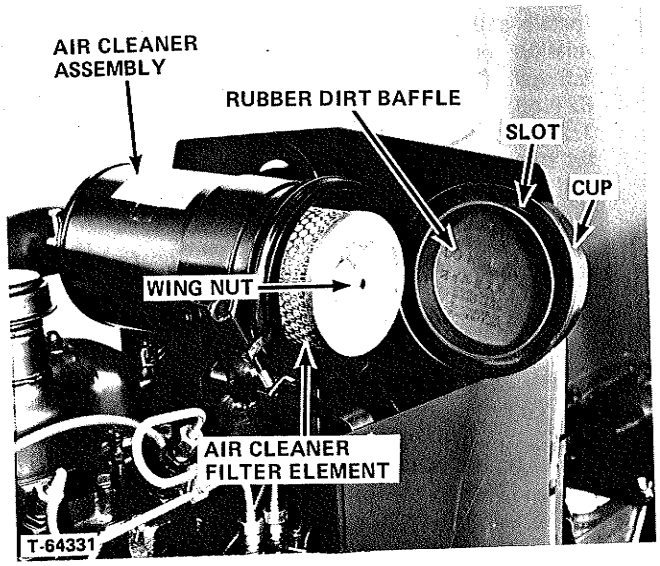


FIGURE 15 - R.H. View

SERVICING AIR CLEANER CUP (Figure 15)

Clean the air cleaner cup daily, or as often as needed, to prevent dust from building up closer than 1/2" (13 mm) from the slot in the baffle support. The air cleaner element will not need to be cleaned as often, if the air cleaner cup is cleaned regularly.

To service the air cleaner cup, stop the engine and open the hood. Loosen the clamp and remove the dust cup.

Remove the dirt baffle from the air cleaner cup and dump out the dirt. Wipe the baffle and cup clean with a dry cloth; do not use an oil saturated cloth. Replace the baffle in the cup, making sure that it is properly seated. Reinstall the air cleaner cup on the air cleaner housing, making sure the slot in the baffle support is at the top, and with the arrows and the word "Top" on the air cleaner cup pointing upward. Tighten the clamp securely. Then close the tractor hood.

SERVICING AIR CLEANER ELEMENT (Figure 15)

Open the hood and remove the air cleaner cup. Remove the wing nut at end of element and remove the element from the air cleaner housing.

Washing in water or blowing with compressed air are the two preferred methods for cleaning. If the element regularly contains substantial amounts of soot or oil fumes, washing in water works better than compressed air. If the contaminant on the element is mostly dust, either method works well. Elements that are cleaned with compressed air can be put back into service immediately. Water cleaned elements must be dried before they can be used; therefore it is a good practice to keep an extra element on hand to use while the washed element is drying.

The filter element is partially covered by a plastic sleeve with fins. The covered portion can be cleaned with water or air without removing the sleeve. Use a stiff fiber (not wire) brush to remove oil and grease deposits from the sleeve and fins.

IMPORTANT: Do not remove plastic sleeve and fins from the element.

Cleaning with Compressed Air

Direct a jet of clean, dry air from the inside of the filter element, perpendicular to the pleats.

IMPORTANT: Pressure at air nozzle must not exceed 100 PSI (690 kPa).

Move the air jet up and down along the inside of pleats, slowly rotating the element, until no more dust is being removed. Time required is approximately 10 minutes.

IMPORTANT: Be careful to see that the element is not ruptured by the nozzle or the air jet. NEVER direct air jet againt the outside surface of filter.

Cleaning with Water

Filter elements can be cleaned by washing with water and a good non-sudsing detergent. If compressed air is available, first direct a jet of clean, dry air from the inside of the filter element. When the loose dust and soot have been removed, the element is ready to be washed.

First dissolve the detergent in a small amount of cool water. Then add warm (approximately 100° F. (38° C.) water to get the proper proportions of detergent and water. Soak the element in the solution for at least 15 minutes. Then agitate the element for about two (2) minutes to loosen the dirt.

WARNING: Never use gasoline or solvents to clean elements.

Rinse the element with clean water until the water coming through the element is clean. Water pressure from a hose or tap should not be over 40 PSI (276 kPa) Air-dry the element thoroughly before using.

NOTE: Mechanized drying methods can be set up; however, heated air (maximum temperature 180° F. (82° C.) must have some circulation. Do not use light bulbs for drying the element.

Inspecting the Cleaned Filter Element

After cleaning the filter element, using either air or water, inspect the element for damage. Look for dust on the clean air side, the slightest rupture, or a damaged gasket. A good method to detect ruptures in the element is to select a dark place, place a light inside the element, and look toward the light from the outside. Any hole in the element, even the smallest, will pass dust to the engine and cause unnecessary wear.

INSPECTING AIR INDUCTION SYSTEM

The air induction system should be periodically checked for parts that may be worn, missing, or damaged. Hoses, gaskets, and connections particularly should be checked for possibility of an air leak. Any air leak that is detected should be corrected before operating the engine.

REINSTALLING THE FILTER ELEMENT (Figure 15)

Thoroughly clean the inside of the air cleaner housing before reinstalling the filter element. Be sure the gasket on the filter element is in good condition; then install the filter element, tightening with the wing nut. A gasket must be between the wing nut and filter element and must be in good condition.

IMPORTANT: Never operate the engine without a filter element in the air cleaner, and always use genuine filter elements for maximum protection.

Reinstall the air cleaner cup with the markings upward, being sure that the cup makes a tight seal. Close the tractor hood.

IMPORTANT SERVICE INFORMATION

The filter element should be replaced after one year, or after six cleanings, whichever occurs first.

Store filter elements where they are protected from dust and potential damage.

If the sealing surface of the element's open end is damaged to the extent that a good air seal cannot be guaranteed, install a new replacement gasket available from your authorized dealer.

IMPORTANT: This can be done only if the filter element is still in good condition.

Keep spare elements (new or cleaned) on hand to use while a freshly washed element is drying.

When replacing filter elements, be absolutely sure that the proper element is used. Your authorized dealer can supply you with the proper element.

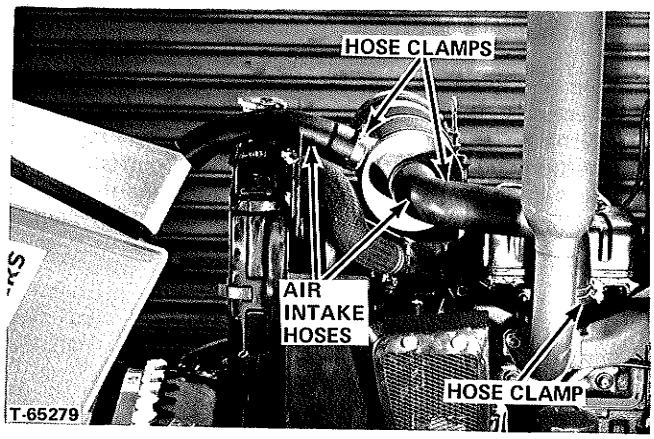


FIGURE 15A - Model 5030 Shown (5020 Similar)

ALTERNATOR

The alternator is used in the electrical charging system and requires no lubrication. The alternator and regulator are designed for use on only one polarity system. This tractor utilizes a negative ground system. The following precautions must be observed when working on the charging circuit. Failure to observe these precautions will result in serious damage to the electrical equipment.

1. When installing a battery always make absolutely sure the ground polarity of the battery and the ground polarity of the alternator are the same. If a battery is of the wrong polarity, or if the battery is reversed when installing and connecting it into the charging system, the battery is directly shorted through the diodes. This will cause the diodes and wiring to be endangered by high current flow and burned out diodes and wiring harness will probably result.

2. When connecting a booster battery or auxiliary starting power as a starting aid, make certain to follow the same connection procedures as outlined in the CAUTION steps 1 thru 4 under BATTERY, Figure 13. Failure to observe this precaution will result in burned out diodes and wiring harness.

3. When connecting a battery charger to the batteries, connect the charger positive lead to the battery positive terminals and charger negative lead to the battery negative terminals. Failure to follow this procedure will result in damage to diodes and wiring harness. Never attempt to start engine or turn key switch to the "ON", "GLOW" or "START" position while charger is in use.

WARNING: Never operate the alternator on an open circuit. With no electrical load in the circuit (wires removed or disconnected), the alternator can build up high voltages which can be extremely dangerous to any one who might accidentally touch the battery terminal on alternator Before making tests or checks, make sure all connections in the circuit are tight.

4. Do not short across or ground any terminals of the alternator or regulator. Grounding or shorting any of the alternator or regulator terminals can cause serious electrical malfunctions that may damage components of the electrical system.

5. Do not attempt to polarize the alternator. This is not necessary since the voltage developed within the alternator is of both polarities and the diode rectifier authomatically controls the direction of current flow. It is important that the battery ground and the alternator ground be of the same polartiy for diode protection.

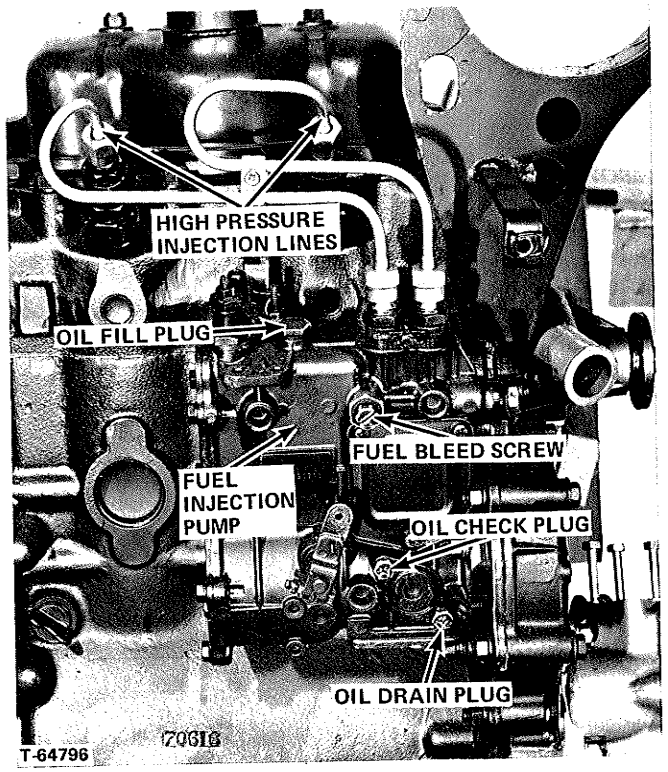


FIGURE 16

INJECTION PUMP LUBRICATION

Injection pump is not lubricated by the crankcase nor does it depend on diesel fuel for lubrication. The pump holds a small amount, 3.7 fl. oz. (110 ml), of engine oil for lubrication. The injection pump oil should be checked every 100 hours and should be changed every 200 hours.

CHECK

Remove the oil check plug (See Figure 16). If oil runs out, the level is okay. If oil does not run out, add new engine oil until it does. Replace plug.

NOTE: If an excessive amount of oil must be added, determine why.

DRAIN

Remove drain plug (See Figure 16) and let oil drain out.

REFILL

Replace drain plug and fill with 3.7 fl. oz. (110 ml) of new engine oil. The fill hole is located on top of the pump and is marked "OIL".

ENGINE SERVICE TIPS

The following suggestions are listed for your assistance. You can make simple adjustments on your tractor that will improve its operation, and save you the time and expense of engaging a Serviceman.

Always make one adjustment at a time, and if the adjustment made does not improve the conditions, return to the original setting before proceeding to next adjustment.

HARD STARTING

Cold air temperatures
Insufficient fuel
Air traps
Loss of compression
Dirty nozzles
Battery charge low
Valve clearance incorrect
Fuel injection pump faulty
Fuel injection pump out of time

ENGINE OVERHEATING

Low coolant level in cooling system
Radiator clogged
Fan belt slipping
Collapsed radiator hose
Thermostat stuck
Engine overloaded
Diluted lubricating oil
Pulling heavy load at reduced RPM
Water pump impeller vanes broken
Radiator cap faulty

LOSS OF POWER

Insufficient fuel
Air in fuel line
Restriction in fuel line
Clogged fuel filters
Transfer pump defective
Late injection pump timing
Loss of compression
Clogged air cleaner
Sticking valves
Valve clearance incorrect
Faulty nozzles
High idle RPM too slow

IRREGULAR OPERATION

Governor control linkage binding
Compression pressure uneven
Valves not seating properly
Faulty fuel nozzles
Low fuel pressure
Low operating temperature
Fuel injection pump out of time

EXCESSIVE EXHAUST SMOKE

Engine overloaded
Clogged air cleaner
Too much fuel to engine
Faulty fuel nozzles
Oil consumption

ENGINE KNOCKING

Engine overloaded
Incorrect fuel
Incorrect timing
Engine RPM too slow

All adjustments on the fuel system must be made by a competent mechanic.

STORAGE OF TRACTOR

TRACTOR PROTECTION IS POCKET BOOK PROTECTION

If tractor is stored for any length of time, a few precautionary measures are helpful in preserving various parts, also in avoiding future difficulty.

1. Store the tractor under cover. If it is impossible to place under cover, be sure to cover the exhaust pipe.
2. Leave the radiator cap and fuel cap slightly loose to protect the gaskets.
3. Block the tractor up to remove the weight from the tires and to keep the tires from contact with the moist floor.
4. Remove the battery and store it in a cool, dry place. Keep it fully charged.
5. Fill the fuel tank to the top to prevent condensation. The fuel should be treated with the proper amount of Diesel fuel conditioner to prevent formation of gum or wax. Run engine long enough to be sure all filters and injection equipment is filled with conditioned fuel.
6. Make sure radiator is filled with rust inhibited antifreeze to the lowest expected temperature.
7. When tractor is removed from storage, it should be serviced throughout, including draining and refilling the engine oil sump with fresh clean oil.

NOTE: If this storage procedure is not followed, operate the tractor for one (1) hour at operating temperature once every three (3) weeks.

TIRE INFLATION (Figure 29)

Improper inflation is a large contributor to tire failure. Under inflation will cause damage to the cord body of the tire. The repeated excessive flexing of the sidewall area may eventually cause a series of breaks and separation in the cord fabric. Over-inflation should also be avoided.

Check tire pressures at least every two or three weeks. Special gauges are available for checking tires filled with calcium chloride solutions. Be sure to wash out the gauge with clear water after using on tires filled with calcium chloride.

To determine the true operating pressure for a liquid filled tire, the valve should be at the bottom of the tire.

Tire pressure should be checked when they are cold and before the tractor is put into operation, since the pressure in the tire rises somewhat as the tire gets warm. A tire that has enough pressure when it is hot may be under inflated when it cools.

Generally speaking, tire inflation should be high enough in both rear tires to prevent them from wrinkling or buckling.

The following table lists the tire manufacturer's recommendation for the minimum and maximum pressures and corresponding maximum permissable load ratings for the agricultural tractor tires available for this tractor. These load ratings represent the maximum permissable total weight supported by each tire at speeds up to 20 MPH (32 km/h) maximum.

Inflate the tires to the minimum pressure shown in column 1 unless the total weight supported exceeds that in column 2. In that case increase the pressure as required but not to exceed the maximum pressure in column 3.

MOUNTING TIRES

WARNING: The proper and safe mounting of tractor tires, tube type and tubeless, requires special equipment and special procedures. To attempt to mount tires without this equipment can cause tire or rim rupture during inflation resulting in a dangerous explosive force sufficient to cause personal injury or death. For this reason, we recommend that tractor tire mounting be done only by your Tire Dealer or other qualified person equipped and trained to perform this service.

TIRE PRESSURE & LOAD TABLE MODEL 5020 & 9523

Column	1		2		3		4	
TIRE SIZE	MINIMUM PRESSURE		MFG. LOAD RATING		MAXIMUM PRESSURE		MFG. LOAD RATING	
FRONT	PSI	kPa	Lb.	kg	PSI	kPa	lb.	kg
4.00 - 12 4 Ply	20	138	330	150	48	331	550	250
20 x 8.00 10 4 Ply	8	55	470	213	24	165	895	406
REAR								
9.5 - 24 4 Ply	12	83	1210	548	18	124	1540	699
13.6 x 16 4 Ply	9	62	1323	600	14	97	1760	798
11.2 x 24 4 Ply	12	83	1470	607	18	124	1860	844

WHEEL BOLT TORQUE – 5020 & 9523 TRACTOR

Maintain wheel bolt torque as follows:

Front wheel to hub bolts - 50 ft.-lbs. (68 N · m) of torque rear wheel bolts and rear wheel hub lock bolts, 115 ft.-lbs. (156 N · m) of torque. On rear wheels with detachable rim assembles the disc to rim bolts should be torqued to 90 ft.-lbs. (122 N · m).

WARNING: Never operate a tractor with loose wheel, rim or hub bolts.

TIRE PRESSURE & LOAD TABLE MODEL 5030 & 9528								
Column	1		2		3		4	
TIRE SIZE	MINIMUM PRESSURE		MFG. LOAD RATING		MAXIMUM PRESSURE		MFG. LOAD RATING	
FRONT	PSI	kPa	Lb.	kg	PSI	kPa	lb.	kg
5.00 x 14 4 Ply	20	138	540	245	40	276	840	381
20 x 8.00 10 4 Ply	8	55	470	213	24	165	895	406
REAR								
12.4 x 24 - 4 Ply	12	83	1995	905	17	120	2535	1150
13.6 x 16 4 Ply	9	62	1323	600	14	97	1760	798

WHEEL BOLT TORQUE — 5030 & 9528 TRACTOR

Maintain wheel bolt torques as follows:

Front wheel hub bolts - 50 ft.-lbs. (69 N · m). Rear wheel disc to rim bolts - 90 ft.-lbs. (122 N · m). Rear wheel to hub bolts and hub lock bolts - 115 ft.-lbs. (156 N · m).

WARNING: Never operate a tractor with loose wheel, rim or hub bolts.

WEIGHTING THE TRACTOR

Conditions may exist where you will wish to add weight to the tractor to increase drawbar pulling power and decrease excessive wheel slippage. This additional weight can be in the form of calcium chloride solution in the tires, cast iron weight on wheels and front end weights. The amount you need will depend on your ground conditions and jobs you are performing.

As weight is added to the rear wheels, the increased draft force tends to take weight off the front wheels.

CAUTION: Make certain that tractor is always equipped with sufficient front end weight to maintain tractor stability and prevent loss of steering control.

It is recommended that you do not use more weight than is actually needed to provide reasonable traction. Total weight on each wheel should not exceed the recommended load ratings of the tire manufacturer as listed in column 4 of the "Tire Pressure and Load Table" for your Tractor Model. On tractors equipped with ROPS Frame added weight must be limited by the gross vehicle weight listed below.

CAUTION: The optional ROPS frame for Model 5020 & 9523 tractor is designed and manufactured to meet the requirements of OSHA standard part 1928, subpart C. for a gross vehicle weight of 3360 lbs. (1524 kg).

CAUTION: The optional ROPS frame for Model 5030 & 9528 tractor is designed and manufactured to meet the requirements of OSHA standard part 1928, subpart C, for a gross vehicle weight of 4160 lbs. (1887 kg).

It is also suggested that the added weights be removed for the light draft jobs such as cultivating, planting, etc. Carrying unneeded weight will increase soil compaction, waste fuel and reduce life of tires, bearings, gears, etc.

NOTE: For more information on adding liquid to the tires or adding cast iron weights refer to the Optional and Extra Equipment section in the rear of this manual.

HOW TO ORDER PARTS

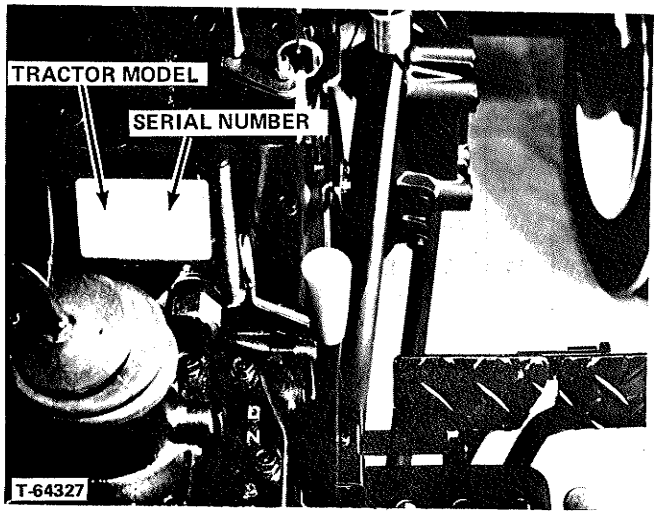


FIGURE 17 - Tractor Model and Serial Number (From Operator's Position)

When ordering parts for your tractor, supply the following information.

1. Tractor Model and Serial Number (Figure 17). The Model (or Catalog) number and Serial Number of your tractor is stamped on a name plate located on rear surface of the steering gear box facing operator.

   Give the complete number as stamped. Example: 5020-1001 for Model 5020 or 2097106-1002 for Model 9523.

   Example: 5030-1001 for Model 5030 or, 2097171-1002 for Model 9528.

2. Engine Model and Serial Number (Figure 18). The Engine Model and Serial Number is located on left hand side of the cylinder block. Example: S126-001001.

3. Transmission Model and Serial Number (Figure 19). Transmission Model and Serial Number is located on right hand side of the transmission housing. Example: E23-001001.

4. State the common name of the part you wish to order, or a description of the part and its location on the tractor.

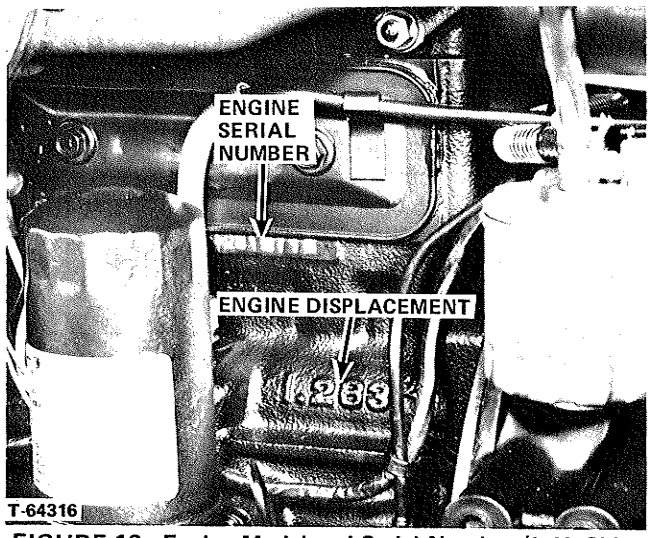


FIGURE 18 - Engine Model and Serial Number (L.H. Side of Engine) - Model 5020, 9523 shown, Model 5030 & 9528 Similar.

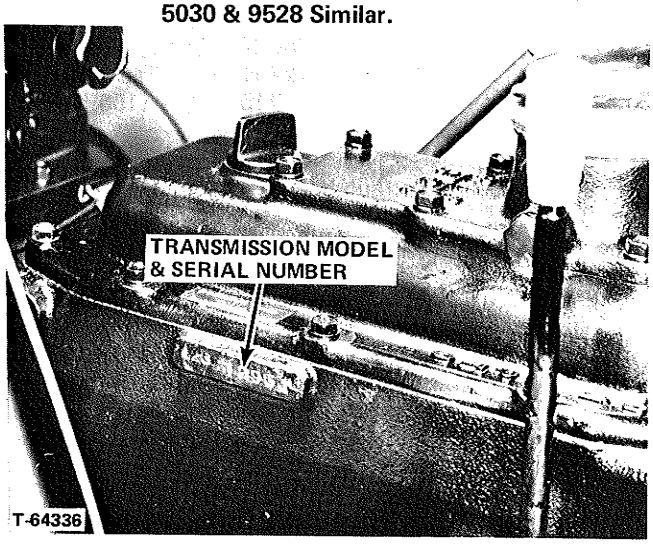
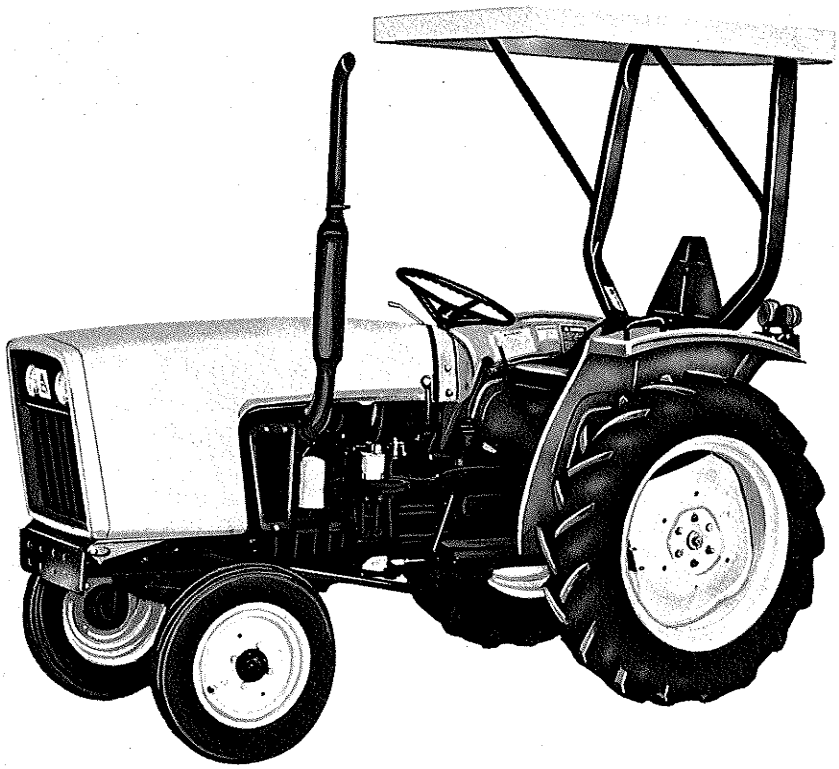


FIGURE 19 - Transmission Model and Serial Number (R.H. Side of Transmission).

Operating Controls and Instruments



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MAKE CERTAIN YOU UNDERSTAND your tractor's operating controls before attempting to operate.

CAUTION: Read, understand and follow the safety precautions, located in front section of this manual.

Remember that safe operation is no accident.

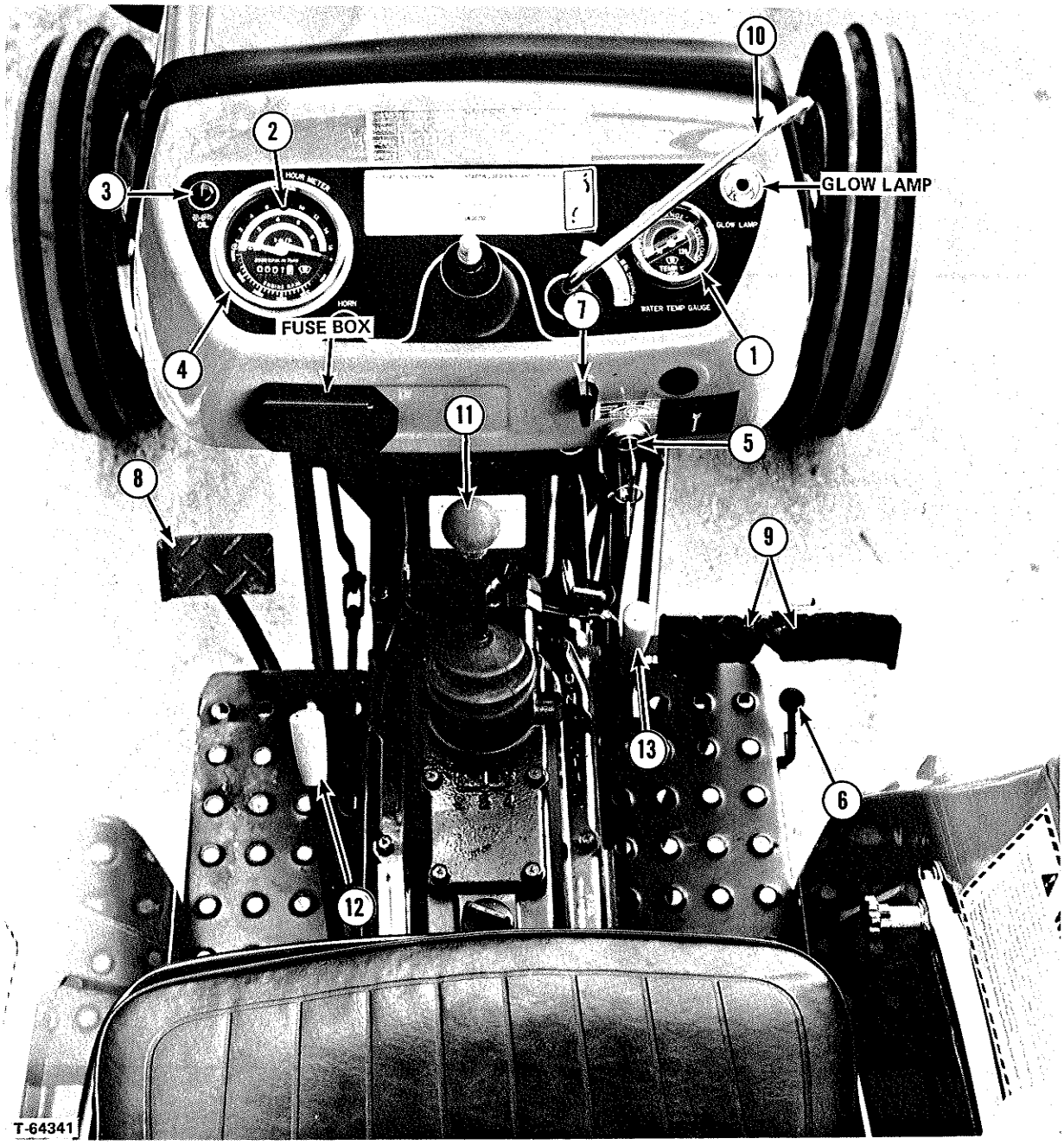


FIGURE 20 - Steering Wheel Removed for Clarity

1. Temperature Gauge
2. Alternator Warning Light
3. Engine Oil Pressure Warning Light
4. Operation Meter
5. Key Switch
6. Foot Throttle
7. Light Switch
8. Engine Clutch Pedal
9. Brake Pedals
10. Hand Throttle Lever
11. Transmission Gear Shift Lever
12. Transmission Range Shift Lever
13. P.T.O. Lever

INSTRUMENTS AND CONTROLS (Figure 20)

The operator of a tractor must familiarize himself with the various controls and instruments provided for its operation. Although many of these controls are similar to those of other tractors, there are important differences and it is not wise regardless of previous expereince to operate the tractor before fully understanding the purpose and function of each control and instrument.

TEMPERATURE GAUGE (Figure 20, Item 1)

This gauge, located on the right hand side of instrument panel, records the temperature of the engine cooling solution between 122° (50° C.) and 248° F. (120° C.). Normal operating temperature is indicated as "OPERATION RANGE".

ALTERNATOR WARNING LIGHT (Figure 20, Item 2)

The alternator warning light is located at top of the hourmeter. It will light whenever the alternator is not charging. The light will glow as soon as key is turned to run and should go out after engine starts. If it does not, stop engine and determine cause and correct.

ENGINE OIL PRESSURE WARNING LIGHT (Figure 20, Item 3)

This light is located in the upper left hand corner of instrument panel and will glow red when the engine oil pressure is below normal. If light comes on during engine operation, stop to determine cause and correct. It should glow when the key switch is turned to "RUN". It does not indicate the engine oil level. If light fails to glow when key switch is turned on, determine the cause and correct before starting engine. Check for burnt out light bulb or loose wires.

OPERATION METER (Figure 20, Item 4)

The operation meter is located on the left hand side of the instrument panel. It records the hours of engine operation and registers the engine speed in RPM. It also has a mark to indicate standard P.T.O. speed. The operation meter runs only when the engine is running.

KEY SWITCH (Figure 20, Item 5)

The key switch controls the starting circuits and the instruments and gauges on the control panel. It must be in the "RUN" position to permit the starting circuits to operate and the warning lights to function. When the key is turned to the left to "OFF" it can be removed to prevent starting the tractor. The key switch must be "ON" to operate the tractor lights.

WARNING LIGHT CHECK (Figure 20, Items 2 & 3)

Each time the engine is started, be sure to check that all warning lights are functioning. When key switch is turned to "RUN" the alternator warning light and the engine oil pressure warning light should come on. Then when the engine is started, these lights should go out.

If these warning lights do not light under the above conditions, check the cause and make the necessary repairs until they work correctly. DO NOT operate the tractor with non-functioning warning and indicator lights.

FOOT THROTTLE (Figure 20, Item 6)

The foot throttle is located on the R.H. platform. If the throttle lever is set at less than full throttle, the foot throttle can be used to increase engine speed for as long as desired, and then return it to the original setting. The foot throttle will not run the engine any faster than the speed obtained with the throttle lever in full fast position.

LIGHT SWITCH (Figure 20, Item 7)

This switch has three positions:

No. 1 position (counterclockwise) is "OFF".

No. 2 position lights the front road lights, instrument panel light, red tail light and flashing warning lights.

No. 3 position lights the front road lights and instrument panel light.

Switch Position	Front Road Lights Instrument Panel Light	Red Tail Light Flashing Warning Lights
1	OFF	OFF
2	ON	ON
3	ON	OFF

ENGINE CLUTCH PEDAL (Figure 20, Item 8)

Depress engine clutch pedal while starting engine, shifting transmission into gear or changing from one gear to another, also to engage and disengage P.T.O. lever.

AVOID using engine clutch pedal as a foot rest.

BRAKE PEDALS (Figure 20, Item 9)

They may be operated individually to aid in turning or operated together when stopping the movement of the tractor.

HAND THROTTLE LEVER (Figure 20, Item 10)

The throttle lever to control engine speed is on right side of instrument panel. "UP" is slow idle speed and "DOWN" is full engine speed. Throttle lever can be set at any position between "SLOW" and "FAST".

When engine is operating at full load the throttle lever must be in the full speed (FAST) position.

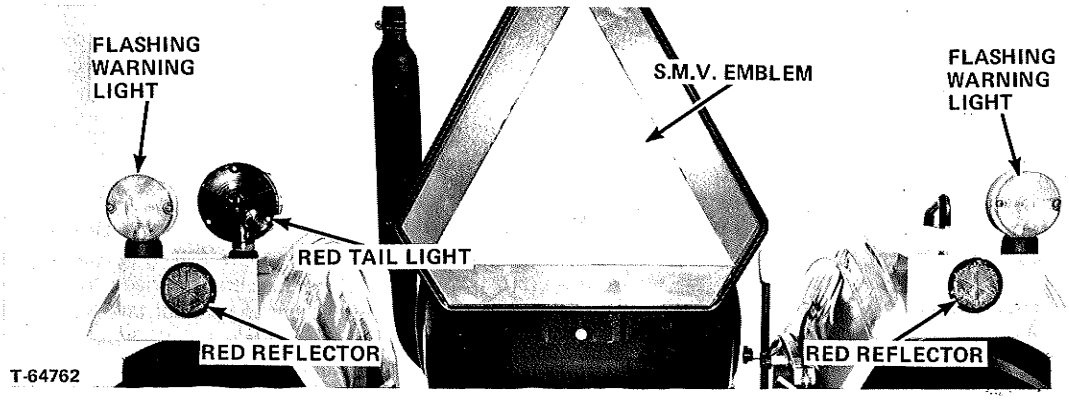


FIGURE 21

TRANSMISSION GEAR SHIFT LEVER (Figure 20, Item 11)

The transmission gear shift lever is used to select the forward travel speed to meet varying working conditions and to shift into reverse gear. The transmission has four forward speeds. When used in conjunction with the range shift lever the 4-speed transmission provides 8 forward speeds and two in reverse.

To shift gears, it is necessary to depress the engine clutch pedal and stop all tractor motion.

TRANSMISSION RANGE SHIFT LEVER (Figure 20, Item 12)

To shift the range shift gears it is necessary to depress the engine clutch pedal and stop all tractor motion. For ease of shifting the range lever the transmission shift lever should be in one of the transmission gear positions. There is no detented neutral in the range shift lever, therefore never leave the range lever positioned between the high and low range.

SLOW MOVING VEHICLE EMBLEM (Figure 21)

CAUTION: ALWAYS make sure that an S.M.V. emblem is VISIBLE from the rear when traveling on public roads.

DIFFERENTIAL LOCK PEDAL (Figure 21-A)

The differential lock pedal is located near the rear of the right hand platform. The differential lock pedal is used to lock the differential so both rear wheels must travel at the same speed. This feature is useful when rear wheel traction is poor, such as in mud or snow.

The differential lock may be engaged by depressing the pedal whenever desired as long as the tractor is traveling in a straight line. The differential lock is disengaged by removing foot from differential lock pedal.

CAUTION: Use the differential lock only when traveling in a straight line at low or moderate speeds. Always disengage it before starting a turn.

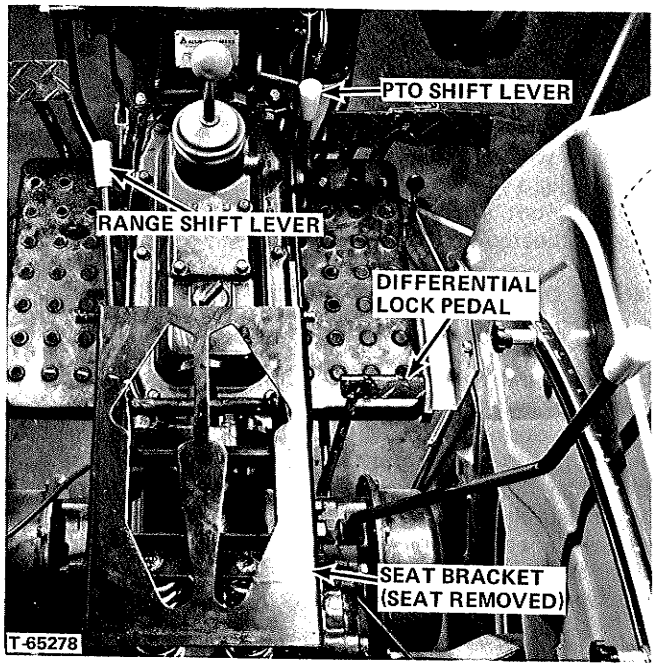


FIGURE 21A - Seat removed for visibility

REFLECTORS (Figure 21)

The rear of tractor wheel guards are equipped with two red reflectors. If these reflectors become damaged or destroyed, they should be replaced immediately.

FLASHING SAFETY WARNING LAMPS (Figure 21)

The warning lamps, which are located on top of the wheel guards, are controlled by the light switch.

NOTE: In areas where flashing warning lamps are illegal, the flashing unit may be by-passed in the wiring circuit and changed to a non-flashing warning lamp as follows:

Disconnect the red and white wire from one of the flasher unit terminals and attach it to the other terminal. Warning light will now burn steady.

CAUTION: Use safety warning lights when operating the tractors on public roads day or night unless prohibited by law.

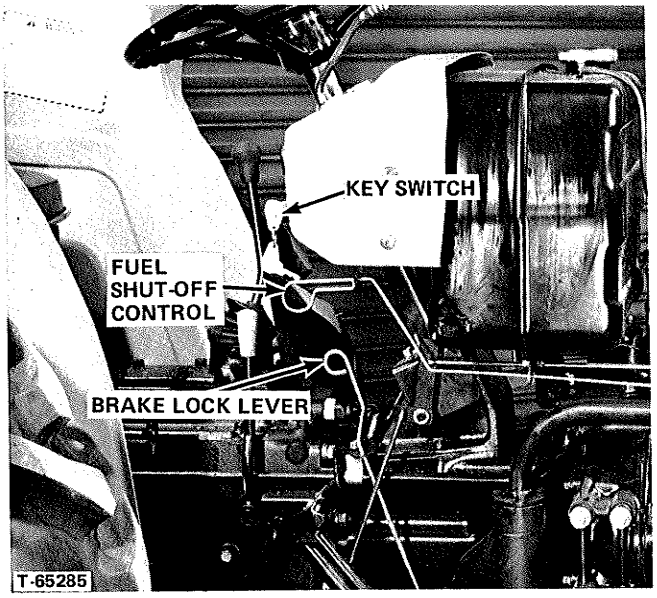


FIGURE 22

FUEL SHUT-OFF CONTROL (Figure 22)

The fuel shut-off control is located under the KEY SWITCH. This rod must be pulled out to stop engine.

To stop engine, pull and latch the control.

Before starting the engine, unlatch and push the control in. Never stop a hot engine. Allow engine to idle for a few minutes to gradually cool all parts evenly.

POSITION CONTROL LEVER (Figure 23)

The single lever located on the R.H. side of operator, controls the position control system. This lever controls the tractor lift arms relative to the tractor. This lever is used to control the working depth of a tool bar not equipped with gauge wheels.

Select any lift arm height with the position control lever to control the working depth of implement.

The position of the tractor lift arms is in direct relation with the position of the hand lever on quadrant. When the hand lever is moved to the rear of quadrant, the lift arms will move to the top of their travel and stay there until the hand lever is moved forward.

If the hand lever is moved forward through half of its range, the tractor lift arms will lower to half of their operating range. The lift arms will always raise when the hand lever is moved rearward, and lower when the hand lever is moved forward.

This lever must be in the full rearward position while transporting implements to or from the field, to assure that implement stays in the full lift position.

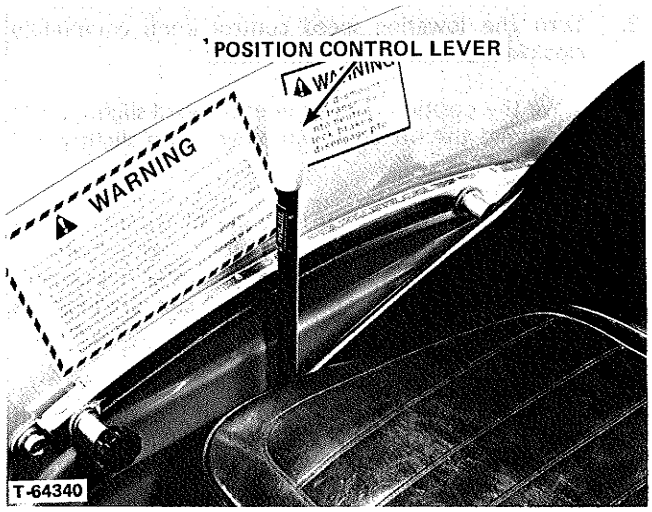


FIGURE 23

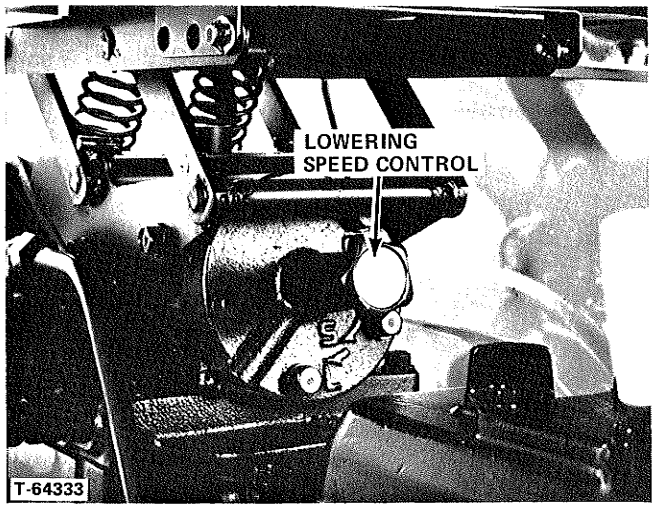


FIGURE 24

LOWERING SPEED CONTROL (Figure 24)

The lowering speed control knob is located on the front end of the hydraulic cylinder under the operator's seat.

This knob is used for controlling the lowering speed of the tractor lift arms.

Turning it clockwise decreases the lowering speed, while turning it counterclockwise increases the speed.

When the knob is turned completely clockwise, lowering stops and the tractor lift arms cannot be lowered.

When locking the lowering valve operate as follows:

1. Set the tractor lift arms at the desired height by-means of the position control lever.

2. Turn the lowering speed control knob completely clockwise (locking position).

3. Move the position control lever forward slightly. (At this time, the lift arms will move down slightly and stop.

WARNING: When lowering of the implement could result in personal injury during maintenance, checking or cleaning of the implement, block implement in desired position with suitable supports.

P.T.O. SHIFT LEVER (Figure 25)

The shift lever located on the R.H. side of the transmission controls the P.T.O. It has two positions - "DRIVE" in the forward position and "NEUTRAL" in the rear position.

NOTE: The P.T.O. must only be engaged and disengaged while the engine clutch pedal is completely depressed and tractor motion stopped.

If tractor engine is stopped while the P.T.O. clutch is engaged, the P.T.O. lever must be moved to the disengaged (rear) position before tractor engine can be started.

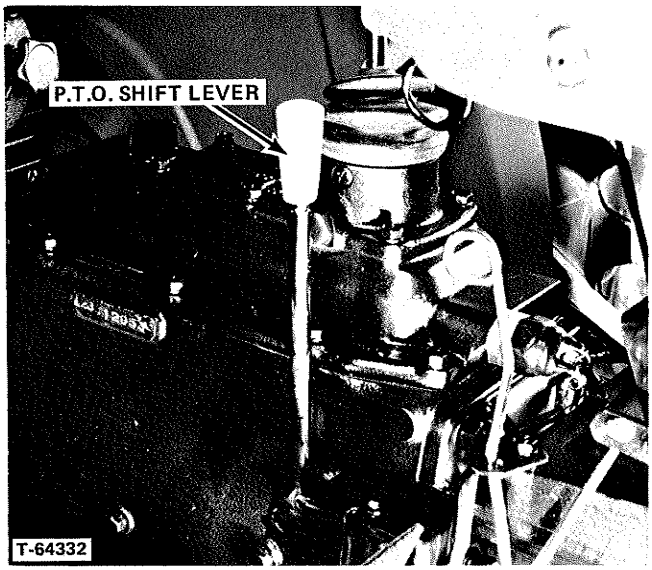
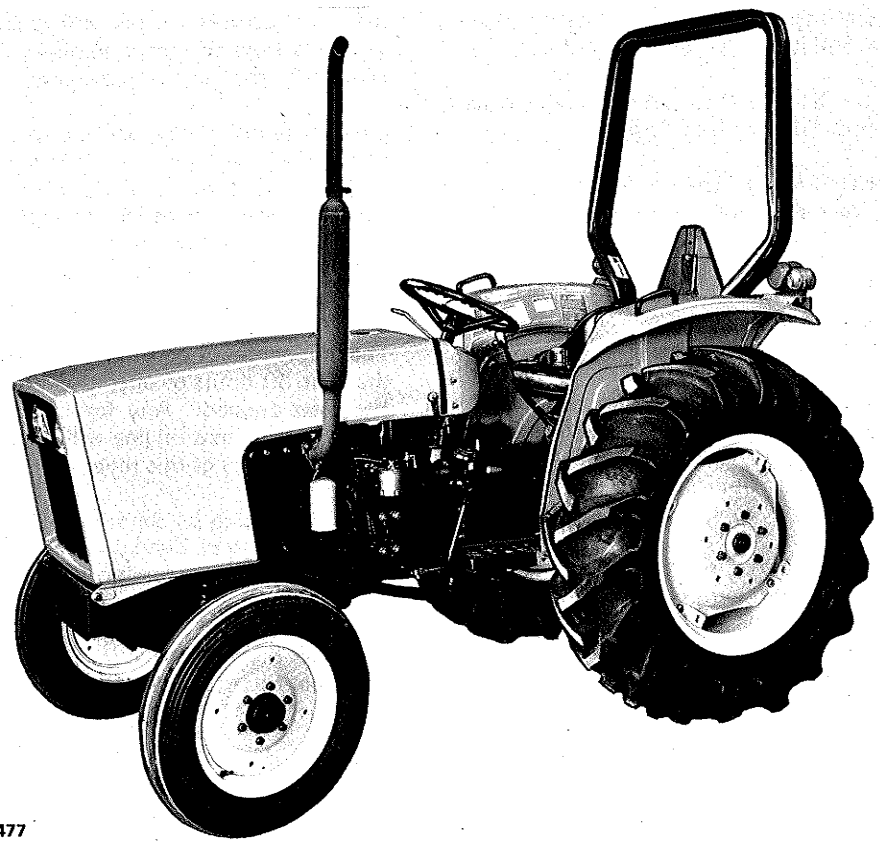


FIGURE 25 - R.H. Side View

Operation



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CAUTION: REMEMBER THAT SAFE OPERATION IS NO ACCIDENT.

After you have studied and learned the tractor controls read and study this section of the manual before operating your tractor. Be sure to follow the Break-In Instructions.

STARTING AND STOPPING THE ENGINE

Before starting the engine for the first time each day, make certain that all points of lubrication and service have been performed as instructed in the lubrication and service guide.

Make sure transmission gear shift lever is in START"S" position and P.T.O. shift lever is in "DISENGAGED" position (rear).

Turn key switch to the left to "GLOW" position and hold it until the GLOW LAMP glows. (Normally, it glows within 30-40 seconds, but it may take more than 40 seconds when ambient temperature is low.

Depress clutch pedal to decrease transmission drag which reduces load on starting motor. Place throttle lever at mid speed position, and push fuel shut-off control in.

Turn key switch to "START" position to crank engine. When engine is warm, "GLOW" is not needed.

WARNING: Never attempt to start engine or operate tractor without being in the operator's seat.

Be sure that he TRANSMISSION SHIFT LEVER is in START"S", PTO shift lever is in DISENGAGED position and engine clutch pedal is fully depressed.

NOTE: As key switch is turned ON, the red engine oil pressure indicator light should glow. If light fails to glow, determine and correct cause of failure. After engine starts, light should go out, indicating proper engine oil pressure.

If engine fails to start after a short cranking period of about 30 seconds, wait two minutes before cranking again. This is to prevent overheating of the starting motor. If after three attempts, the engine fails to start, determine cause and correct failure.

FAST WARM-UP PERIOD

Condensation accumulates in any engine during initial warm-up period or when operating at too low a temperature. To reduce condensation and undue engine wear, practice fast warm-up of engine temperature.

Engine is equipped with a thermostat by-pass system to provide fast warm-up. This warm-up period can be further reduced by operating engine at approximately 1000 RPM and slightly loading engine for first 5 to 10 minutes, such as driving to field in third gear. Never operate the tractor under full load until engine has reached operating temperature.

Avoid unnecessary idling of the engine, as this will cause engine operating temperature to fall below its normal operating range and cause rapid accumulation of engine sludge. Idling also causes engine oil dilution due to incomplete fuel burning as well as forming deposits on valves and piston rings. It is best to stop engine if tractor is to be idling for a time.

BREAK-IN PERIOD

The engine is assembled and tested at the factory to insure that it is ready for work; however, the engine must be properly broke in to obtain the peak performance and long life that is built into the engine. Proper break-in will increase the power and prolong engine life.

To properly break-in an engine merely means that the engine should be operated at reduced loads for a period of time (approximately 100 hours) long enough for the piston rings to seat in with the cylinder liners and form a lapped fit which would make a perfect seal between pistons and liners before the engine is used on rated load operations.

If an engine is operated at full load before it is broke in, the high pressures and temperatures created from the burning gases tend to escape between the piston and cylinder liner into the engine crankcase, this is called blow-by.

Blow-by tends to heat and collapse the piston rings which causes them to carbon up and stick to such extent that they will never seat to the cylinder liners. This causes the engine to have excessive oil consumption and a loss of power. In any event, the time required for proper break-in is well paid for in added fuel economy and top engine performance.

The original fill of oil should be used approximately for the first 50 hours of operation during the break-in period and then drained. Any foreign material which might accumulate in a new engine will be drained out. Change the engine oil filters at this time.

Refill the engine oil sump with oil as recommended in the "Lubrication and Service Guide". The oil used should have a service classification of CD (DS Series 3) oil for the diesel engines (See Special Lubrication Information).

After the first 50 hours of operation, clean and check the hydraulic filter and change the transmission and hydraulic oil.

When breaking-in an engine, it is necessary to maintain the proper operating temperature 160° to 220° F. (71° to 104° C.) to avoid the accumulation of condensation. This practice should also be continued after the break-in period. Condensation will damage and deteriorate the vital parts of an engine to complete destruction if allowed to accumulate for a period of time.

As the break-in period progresses, approximately after the first 50 hours of operation at reduced loads, the load should be increased at short intervals until at the end of approximately 100 hours the engine can be operated at rated loads. The load on the engine can be decreased or increased by selecting a lower or higher transmission speed.

An engine should never be used on a load that would cause it to lug. This would be considered an overload. The throttle should be in full speed position on any load during or after the break-in period. Reducing engine speed on light loads may create a lugging condition. Reduced en-

gine speeds may be used to limit travel speed if lugging is avoided.

For long life of an engine, it should never be operated at its maximum power output on continuous loads such as fans, water pumps or hammer mills. Only 80% of the maximum power output should be used.

The balance of the tractor is also broken-in during this interval and proves beneficial to such parts as brakes, gears, bearings, etc. During this interval all external bolts should be checked for torque or tightness. All mating parts, gaskets, etc., take a set during this period and if all bolts are kept tight they will stay tight. I allowed to work loose for any length of time it will be impossible to keep them tight.

For proper break-in the following suggestions are made for best results:

1. Make certain that all points of care and lubrication outlined under "Lubrication and Service Guide). have been serviced as specified.

2. Maintain engine speed slightly above rated RPM by selecting a gear to match the load for the first 100 hours of operation.

3. Maintain engine temperature between 160° to 220° F. (71° to 104° C.).

4. Drain the break-in oil at the end of the first 50 hours of operation and refill with an oil of the recommended viscosity for the prevailing temperature. Change the engine oil filters also.

ENGINE CLUTCH PEDAL

The engine clutch pedal is located to the left and front of the operator.

This pedal is provided for engaging or disengaging the power of the engine from the transmission and is used when shifting gears.

As the pedal is pushed down, it disengages the power of the engine from the transmission.

Depress clutch pedal while starting engine, shifting transmission into gear or changing from one gear to another.

The clutch is adequate for many hours of normal use, but if abused or incorrectly used in any manner, its life can be drastically shortened. The clutch should never be slipped when starting loads and loads must be started at reduced engine speed. If clutch is used as a speed reducer, or for starting loads under full engine power, its life will be drastically shortened.

In the normal use of the clutch, it should only be engaged with the engine at reduced speeds, and engaged as fast as possible to acquire a gentle start with the least amount of slipping. Therefore, the fastest engagement possible under the existing circumstances gives the best clutch life. Increase engine speed after the clutch is engaged.

AVOID using engine clutch pedal as a foot rest.

GEAR SHIFTING – TRANSMISSION

The transmission has a shift lever to select the proper gear speed for the work being done. Before shifting into any gear, release the engine clutch fully and allow transmission to stop gears from rotating. Then move the shift lever from NEUTRAL to the desired gear position. With a little practice the operator will be able to shift gears without clashing.

Always stop the forward motion of tractor before changing from one gear to another. Never attempt to shift gears on the go as excessive gear clashing may result. To shift from one gear to another, shift directly to the neutral area. then move lever to desired position before shifting to the next gear. Never force lever from one gear to another.

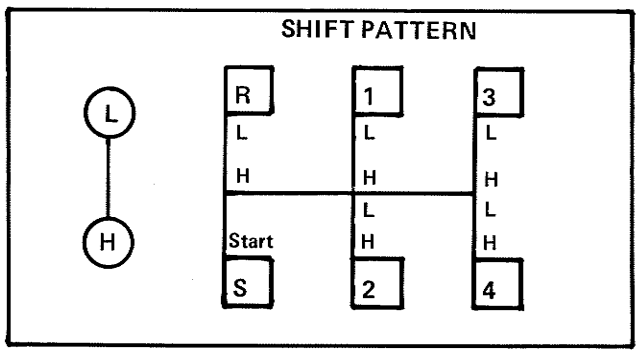
To shift gears, move the gear shift lever towards the desired position.

Transmission shift lever MUST always be in the START"S" position before starting engine. Gear shifting should be made at reduced engine speed. This will make shifting easier and reduce clashing. Increase engine speed sufficiently to start load. After clutch is engaged, increase engine speed to full speed, especially on loads.

To select high or low speed range for the transmission gears, depress the engine clutch pedal, stop all tractor motion and shift the range shift lever to high or low as desired.

For ease of shifting the range lever the transmission shift lever should be in one of the transmission gear positions.

There is no detented neutral in the range shift lever, therefore never leave the range lever positioned between the high and low range.



COASTING

WARNING: Never allow tractor to coast down hill with transmission in neutral or engine clutch depressed. To do so may cause loss of control and injury to operator or by-stander. In addition to possible personal injury, coasting can cause damage to gears, brakes and engine parts of the tractor from over-speeding. It is an unsafe and unwise procedure.

BRAKE PEDALS (Figure 26)

The brake pedals are conveniently located to the right and front of the operator. They may operated individually to aid in turning, or operated together when stopping the forward and rearward motion of the tractor.

When stopping, apply pressure evenly to both pedals. The pedals may be latched together for driving on the highway. To aid in turning during field use, apply the brake for the side to which the tractor is being turned.

WARNING: DO NOT attempt short turns at high speeds.

BRAKE LOCK LEVER (Figures 22 & 26)

The brake lock lever is located to the right of the operator and is used when locking the brake pedals in the applied position. If it is desired to lock both brakes, the brake pedals must be latched together, as the lock is applied to one pedal only.

To lock thebrake pedals in the applied position, move the brake lock lever up and depress the brake pedals. To release the brakes, depress the brake pedals. Be sure brakes are released before operating tractor.

P.T.O. SHAFT OPERATION (Figure 27)

WARNING: Make sure the P.T.O. shield is in place.

NOTE: It is recommended that the top hitch point hole in the upper link attaching bracket be used for the upper link when operating fully mounted P.T.O. driven equipment. This will provide the minimum change in drive line tilt when an implement is lifted and the maximum clearance between the upper link and the P.T.O. shield.

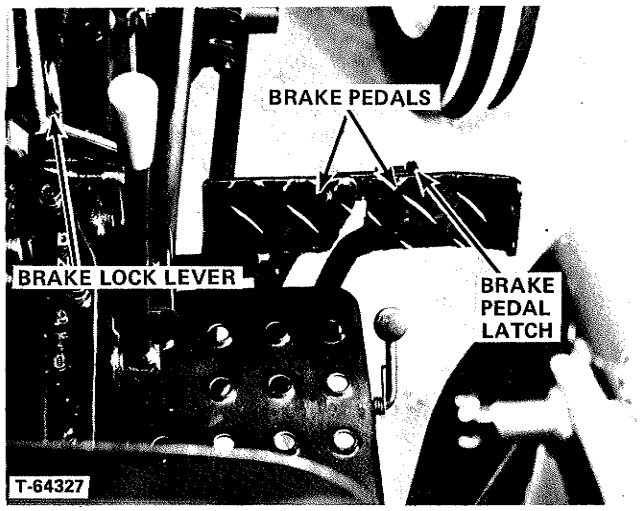


FIGURE 26 - Brake Pedals

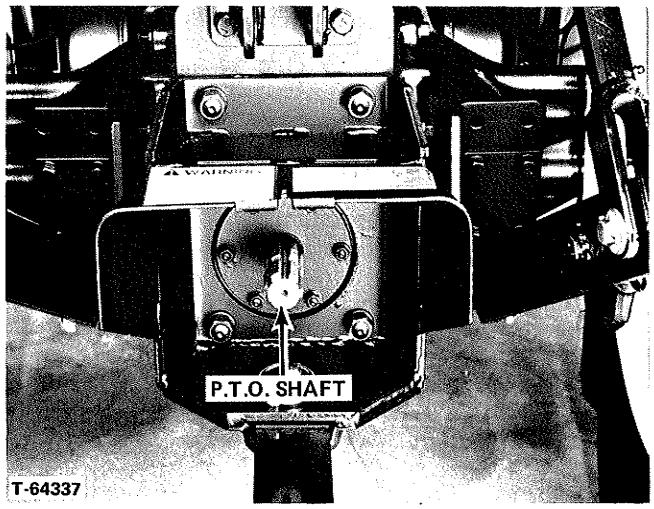


FIGURE 27

SAFETY TIPS & P.T.O. OPERATING INSTRUCTIONS

1. When hitching to a 540 RPM power take-off implement, the tractor drawbar must be positioned with the hitch hole 14" (356 mm) horizontally to the rear of the end of the P.T.O. shaft. Be sure that drawbar is positioned correctly.

2. Be sure the tractor engine is stopped before attempting to attach implement P.T.O. front yoke to tractor P.T.O. shaft. With engine stopped and P.T.O. shift lever is in disengaged position the shaft can be turned by hand to align with splines in yoke.

3. Refer to "P.T.O. Shift Lever" in "Operating Controls" section for instructions on how to engage P.T.O.

4. Read the implement Operator's Manual for any special instructions.

5. Select a low tractor gear to start operation. Move to faster gear as crop and ground conditions permit.

6. To obtain rated 540 RPM P.T.O. speed set the engine speed to maintain the pointer on operation meter on the P.T.O. Mark (2300 RPM engine speed). For special conditions set the P.T.O. at speeds recommended in the implement Operator's Manual.

7. Select transmission gear and shift position to permit handling the heaviest areas of crop without lugging engine below the speed selected in Item 6. Then in lighter crop areas shift into a higher gear for increased efficiency, dropping back to the lower gear as required in heavy crop areas.

CAUTION: Keep all shields on tractor and P.T.O. driven equipment in place at all times.

CAUTION: When a P.T.O. driven implement is attached to the tractor, do not leave the tractor operator's platform unless the P.T.O. is disengaged, the transmission shift lever in neutral, the brakes are set and the engine is stopped. **Exception:** For certain implements such as forage blower, feed grinder, forage harvester knife sharpening, etc., which require P.T.O. operation while in stationary position without an operator on the tractor, follow the specific instructions for operation as given in implement operator's manual.

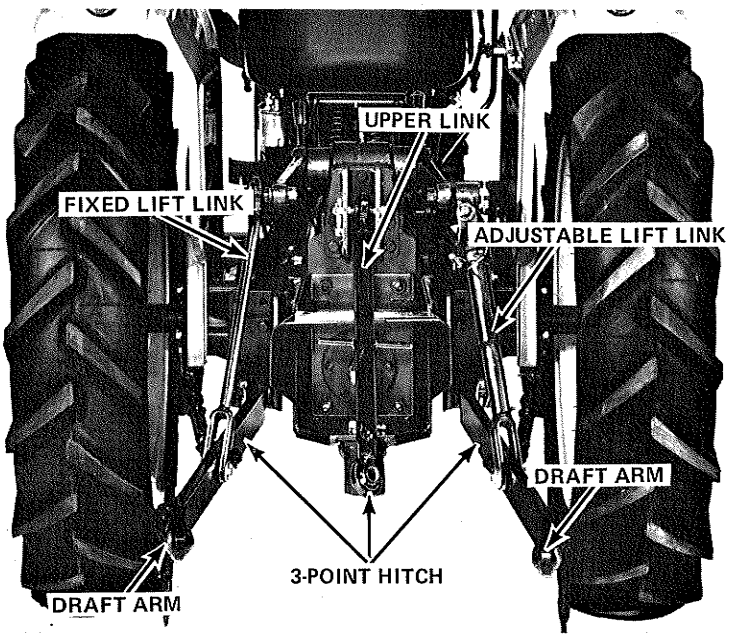


FIGURE 31

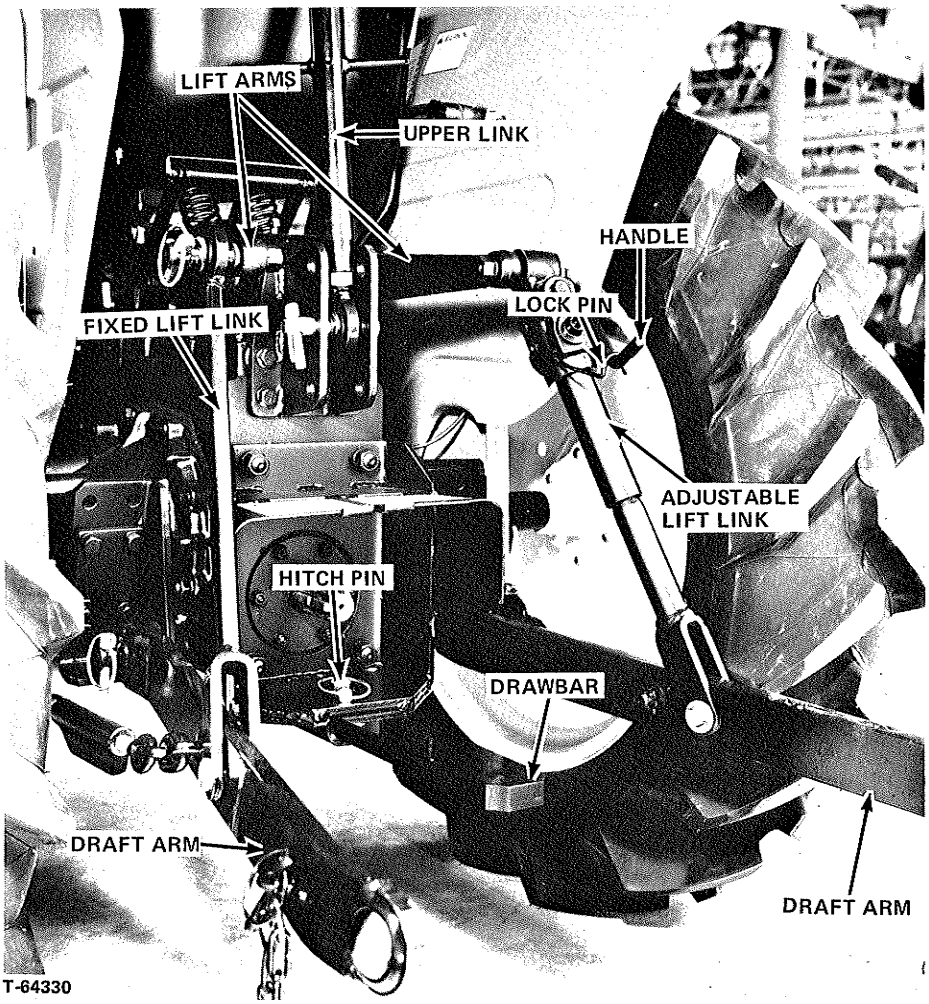


FIGURE 32

DRAWBAR–3-POINT HITCH (Figure 31)

The drawbar can be used with the 540 RPM P.T.O. If a 14" dimension from the end of P.T.O. shaft to the drawbar hitch hole is maintained.

3-POINT HITCH (Figure 31)

Tractors are available with a 3-point hitch as factory installation. The hitch is rugged and fully adjustable, designed to work with Category I Implements.

LIFT LINKS (Figures 31 and 32)

The R.H. draft arm is connected to the lift arm by a screw type linkage. This linkage is used as a winging adjustment for leveling the attached implement in a crosswise direction and can be used for raising or lowering the draft arms while hitching to an implement.

The lift link can be adjusted by turning the handle.

Handle must be locked in place with lock pin after adjustment is made.

UPPER LINK (Figure 31)

The upper link is adjustable in length and is used to level the implement fore and aft when at its working depth. The link may also be adjusted to aid in hitching. To adjust link turn the center tube section until the desired length is obtained and tighten locknut. Three holes are provided in the bracket for attaching the upper link to tractor, to compensate for various tower heights of implements. For most operating conditions it is desirable to use the center hole in bracket.

HITCHING TO IMPLEMENT (Figure 32)

Before attempting to hitch the tractor to a 3-point hitch type implement, remove the drawbar.

To do so, remove pin from drawbar bail and slide the drawbar rearward; reinstall pin.

Back tractor up to implement until pin holes in lower links are close to the implement hitch pins. Raise or lower draft arms until they are nearly the same height as the implement hitch pin.

WARNING: BEFORE leaving tractor seat ALWAYS PLACE TRANSMISSION SHIFT LEVER IN NEUTRAL, disengage P.T.O. set brakes, and stop engine unless specifically instructed in the Operator's Manual of some machine or attachment to do otherwise.

Hitch L.H. draft arm to implement and insert the hitch pin.

To hitch the R.H. draft arm may require lengthening or shortening the lift link.

Attach the upper link to tower on implement. The link may be lengthened or shortened to facilitate hitching.

Placing upper link in lower hole of tractor bracket and shortening lift links prior to lifting implement from ground with the hydraulic system, will provide the greatest transport clearance for mounted implements.

Placing upper link in upper hole of tractor bracket will give the hydraulic lift system maximum liftability when raising an implement.

The links may have to be readjusted in the field. The R.H. lift link is for leveling implement in a crosswise direction and the upper link is used to level the implement in a fore and aft direction when at its working depth.

PLOWING

If plowing with one wheel in the furrow, add more weight to the wheel on land than the wheel in the furrow, because weight is shifted to the furrow wheel.

IMPORTANT: Do not "overweight" the tractor. To do so can put excessive strain on tires, rear axles, gears, bearings, brakes and other components.

NOTES

Adjustments

ADJUSTMENTS

To keep your tractor operating properly it is necessary to make periodic adjustments.

Read this section of your Operator's Manual and refer to it when necessary.

WARNING: NEVER permit anyone to examine, clean, service or adjust the tractor or any equipment operated by it UNTIL tractor engine is stopped, transmission shift lever is in NEUTRAL, P.T.O. is disengaged, brakes are set and all moving parts have stopped.

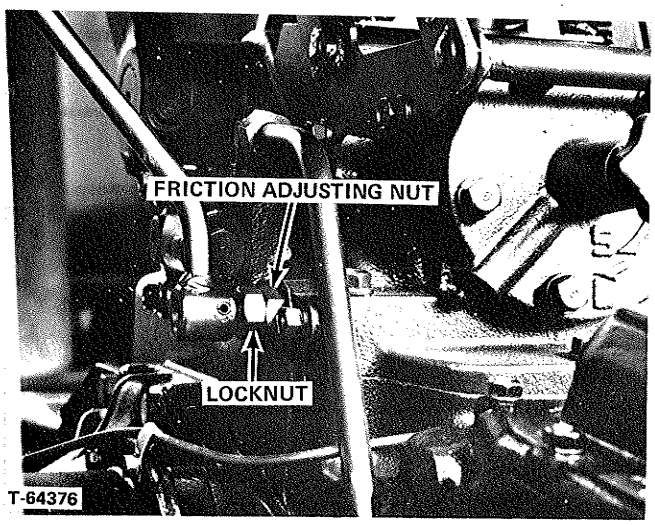


FIGURE 33 - R.H. Side

POSITION CONTROL LEVER FRICTION ADJUSTMENT (Figure 33)

The position control lever friction should be tight enough to hold lever in position where placed. If lever moves without being touched, adjust as follows:

1. With the engine stopped, loosen the locknut and tighten the friction adjusting nut slightly until the lever does not move of its own accord.

2. Retighten the locknut.

LOWERING SPEED ADJUSTMENT (Figure 34)

This adjustment controls the speed of lowering the lift arms.

1. Turning the lowering speed control knob clockwise decreases the lowering speed (indicated as "S"), and turning it counterclockwise increases the speed (indicated as "F").

2. When the knob is turned clockwise to the extreme, lowering stops and the implement cannot be lowered (indicated as "L").

3. When locking, turn the knob clockwise to the extreme and move the position control lever to lower slightly. (At this time, the implement will move down slightly and stop).

4. This knob cannot adjust the speed of raising. Raising speed is dependent on engine speed.

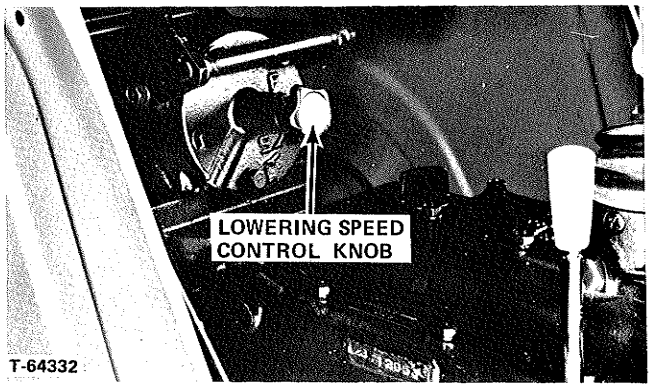


FIGURE 34

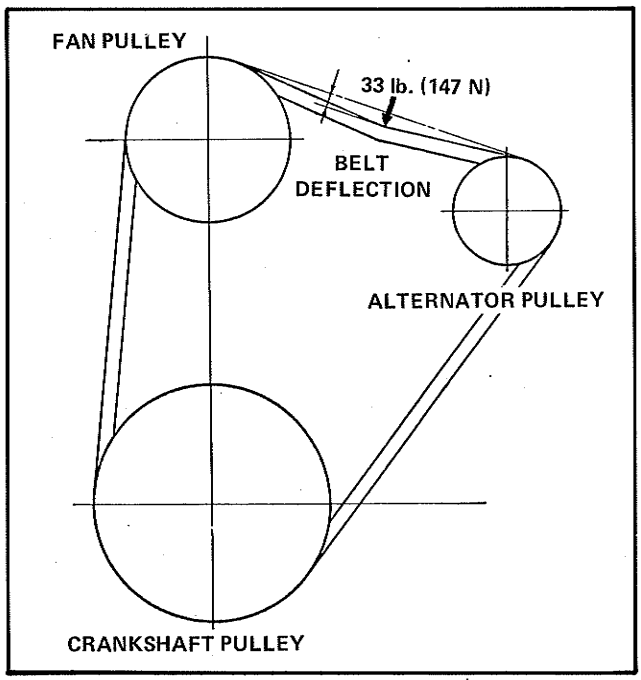


FIGURE 34A

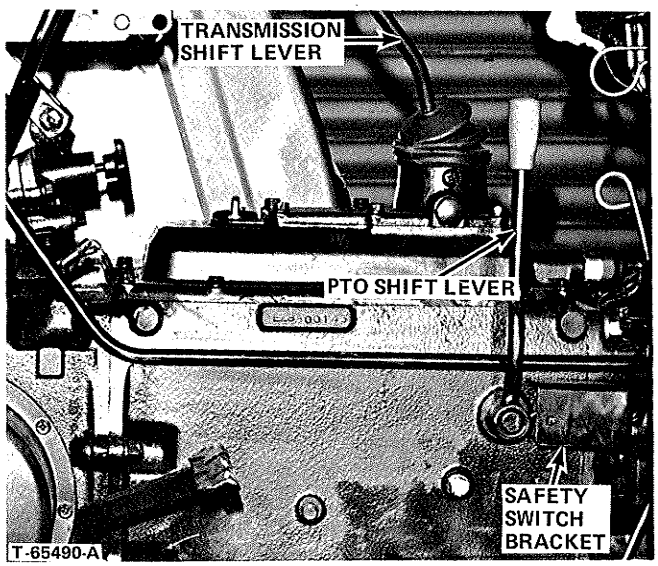


FIGURE 34B - PTO Shift Lever - R.H. Side Tractor

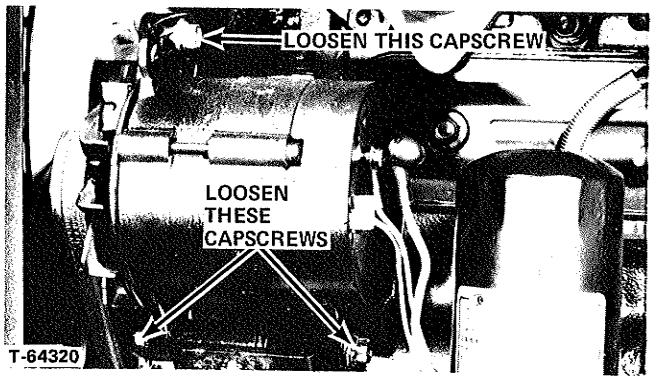


FIGURE 35

FAN BELT ADJUSTMENT (Figures 34A & 35)

The fan belt adjustment must be checked periodically and the proper adjustment maintained at all times. If the belt is allowed to become loose enough to slip on the pulleys, it will greatly effect the cooling system causing the engine to run hot due to insufficient air flow and circulation of the coolant. The fan belt must not be over-tightened as it will reduce the life of alternator bearings, fan and pump shaft bearing and fan belt.

Adjust fan belt to give .3 to .4" (8 to 10 mm) belt deflection midway between the alternator and fan pulley. Belt deflection obtained by a 33 lb. (147 N) force on a spring scale attached to belt.

To adjust fan belts, loosen capscrews on alternator brace and lower pivot point, move alternator toward or away from engine until the above deflection is obtained and retighten capscrews. (Figure 35).

ENGINE CLUTCH PEDAL ADJUSTMENT (Figure 36)

The engine clutch pedal is initially adjusted to have .8 to 1" (20 - 30 mm) free travel at pedal pad. During operation this free travel will gradually diminish. The pedal free travel determines the amount of clearance between the clutch release bearing and the clutch release levers.

Insufficient pedal free travel will load to clutch slippage or failure of the clutch release bearing.

To adjust the clutch pedal linkage, disconnect the clutch rod from the clutch lever and adjust yoke on rod until there is .8 to 1" (20 -30 mm) of free travel at pedal pad, with rod attached to clutch lever and pedal against stop. When correct adjustment is obtained, attach rod to clutch lever with pin and insert the retaining cotter pin.

P.T.O. SHIFT LEVER (Figure 34B)

P.T.O. shift lever is located on R.H. side of transmission It has two positions - "ENGAGED" in the forward position, and "DISENGAGED" in the rear position.

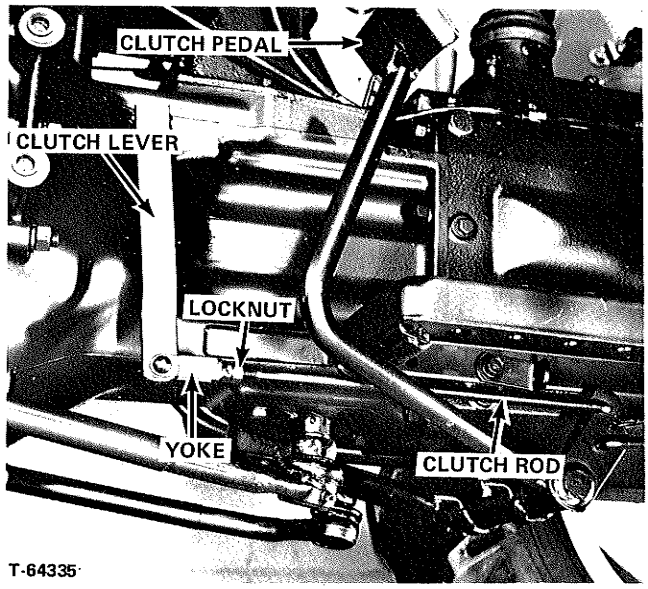


FIGURE 36 - L.H. Side View

When shifting the lever to "ENGAGED" or "DISEN–GAGED", be sure the clutch pedal is fully depressed and tractor motion is stopped.

If tractor engine is stopped while the P.T.O. lever is in the engaged position the P.T.O. lever must be moved to the disengaged position before tractor engine can be started.

P.T.O. SAFETY START SWITCH

This safety feature is designed into the P.T.O. shift linkage to prevent engine from being started while P.T.O. shift lever is engaged.

CAUTION: DO NOT BY-PASS the safety start switch. If it malfunctions, check with your authorized dealer and have it repaired.

NOTE: If tractor engine fails to start with P.T.O. shift lever in the disengaged position it may become necessary to adjust the safety switch bracket forward, the safety switch bracket is located to the front of the P.T.O. shift lever on R.H. side of tractor transmission housing. - Figure 34B.

ADJUSTMENT OF BRAKE PEDAL

1. Adjust right pedal first.
2. Loosen locknut and rotate turnbuckle so that pedal play is .8 to 1" (20-30 mm). Tighten locknut securely. (Pedal play is the distance the pedal moves freely when gently pushed by hand.)
3. Adjust left pedal in the same way so that pedal play is equal.
4. Latch pedals together, engage brake lock lever and make sure that more than 2 notches remain on the ratchet.

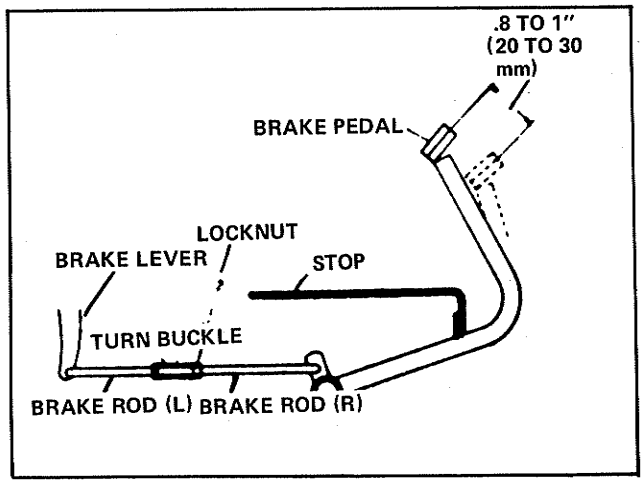


FIGURE 37

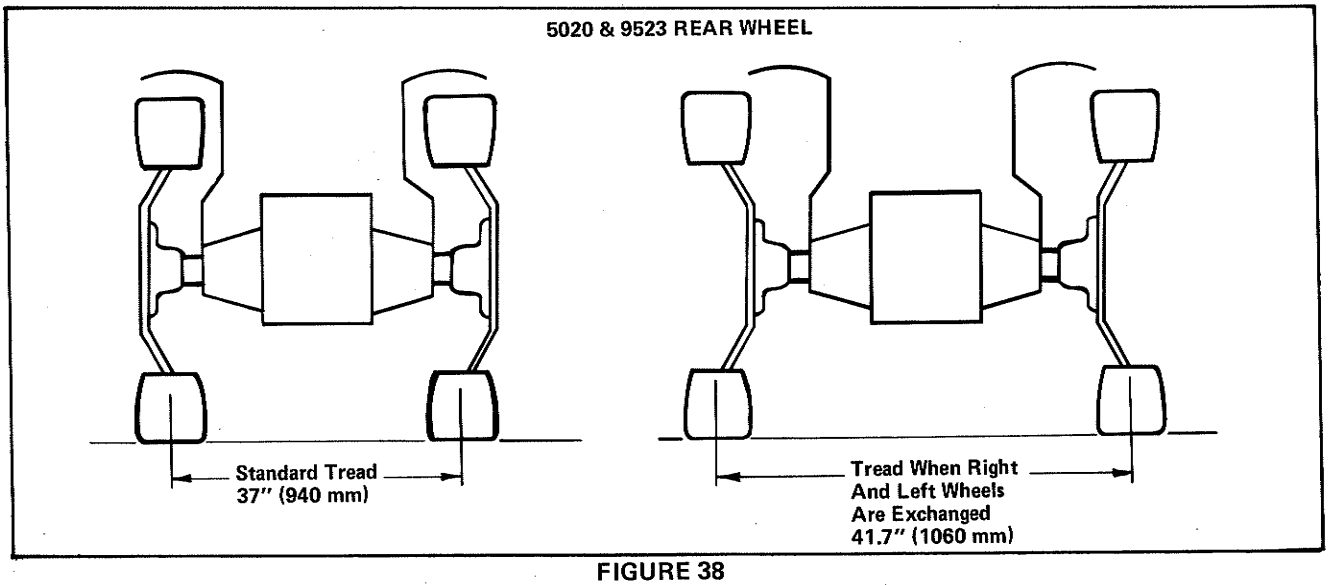


FIGURE 38

MODEL 5020 & 9523 FRONT WHEEL TREAD

The front axle of the 5020 & 9523 tractor is not adjustable.

The standard front wheel tread with 4 x 12 agricultural wires and with front wheels bolted to wheel hubs with the dished side of wheel inward is 37.4" (950 mm).

With the dished side of the front wheels turned outward the tread is 44.1" (1120 mm).

Maintain front wheel bolts tightened to 50 ft.-lbs. (68 N · m) of torque. When turf tires are used the front wheels have a single tread width of 38.6" (980 mm).

MODEL 5020 & 9523 REAR WHEEL TREAD (Figure 38)

The rear wheel hubs cannot be shifted on the axle.

The rear wheel tread, with 9.5 x 24 agricultural tires and with wheels dished inward as shown on left side of Figure 38 is 37" (940 mm).

With wheels interchanged as shown on right side of Figure 38 the wheel tread is 41.7" (1060 mm).

Maintain rear wheel bolts and rear wheel hub lock bolts tightened to 115 ft.-lbs. (158 N · m) of torque.

WARNING: Never operate a tractor with loose wheel, rim or hub bolts.

With 11.2 x 24 agricultural tires, rear wheels similar to those used on the model 5030 tractors are installed to provide five tread widths from 39.2" (995 mm) to 51.0" (1296 mm).

When rear turf tires are used they are installed on a single tread width of 40.2" (1021 mm).

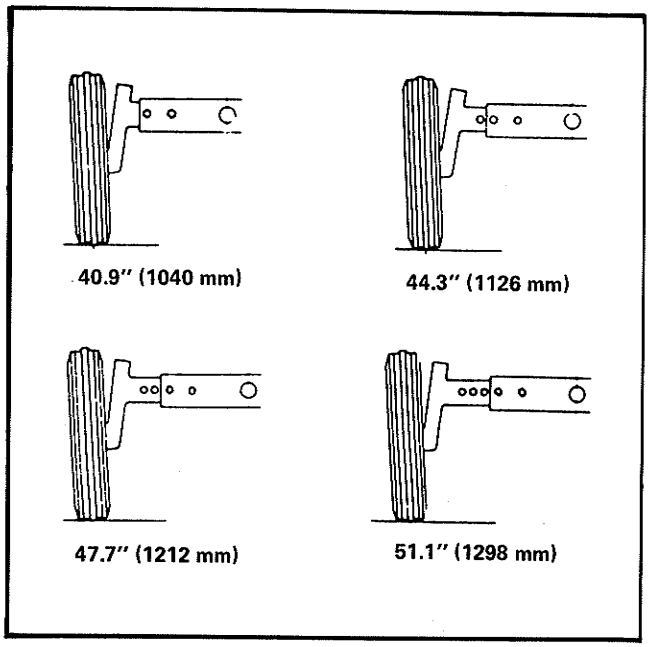


FIGURE 39 - 5030 Front Wheel Tread

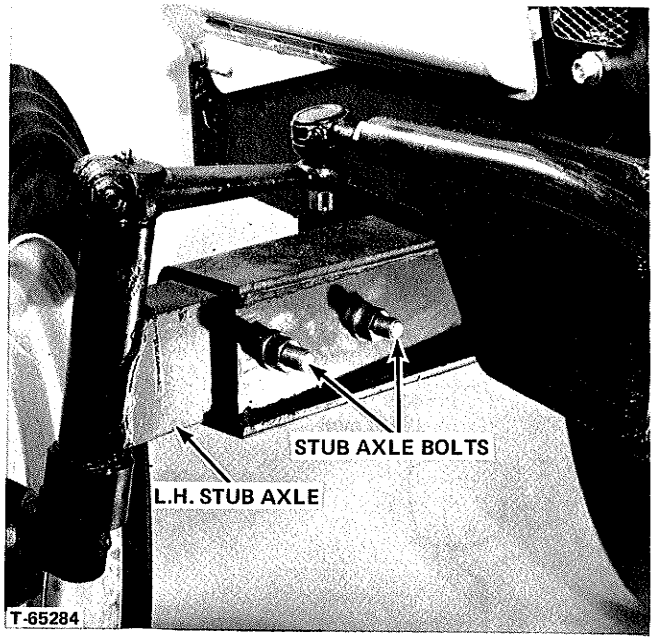


FIGURE 39A - 5030 - L.H. Stub Axle

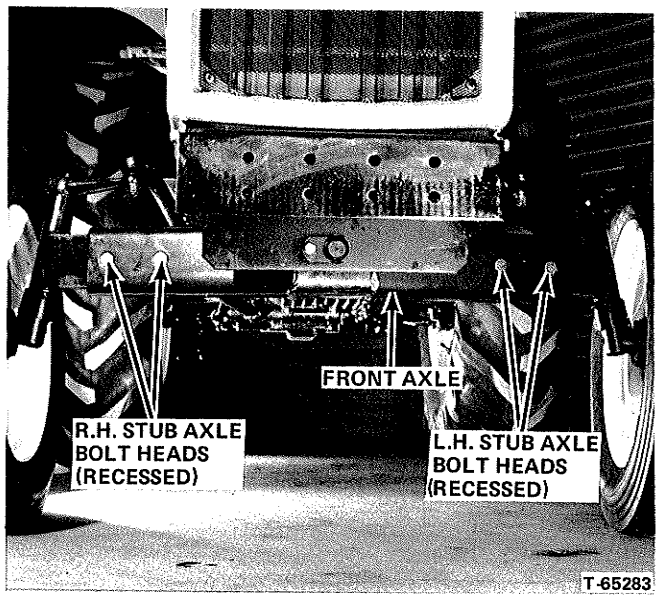


FIGURE 39B

MODEL 5030 & 9528 FRONT WHEEL TREAD

The front wheels are assembled to the hubs with dished side of wheel turned inward at all times. The front axle is adjustable to give front wheel treads as shown in Figure 39.

To adjust wheel tread on tractors with agricultural tires:

1. Locate the tractor on a smooth level surface, then stop engine, latch brake pedals together, engage brake lock lever and apply brakes.

2. Jack up one side of the front axle until tire just clears the ground.

3. Remove the two bolts holding the stub axle to axle and shift stub axle in or out as desired to position a, b, c, or d shown in Figure 39. Replace bolts with heads in the hexagonal recessed holes from which they were removed, and tighten nuts securely.

4. Repeat steps 2 and 3 on the other front wheel making sure that stub axle is located in the same position as the first stub axle to equally space them from the centerline of the tractor.

5. Recheck all four axle to stub axle bolts and tighten to 115 ft.-lbs. (158 N · m) of torque. Check these bolts as required to maintain this torque.

Maintain front wheel bolts tightened to 50 ft.-lbs. (68 N · m) of torque.

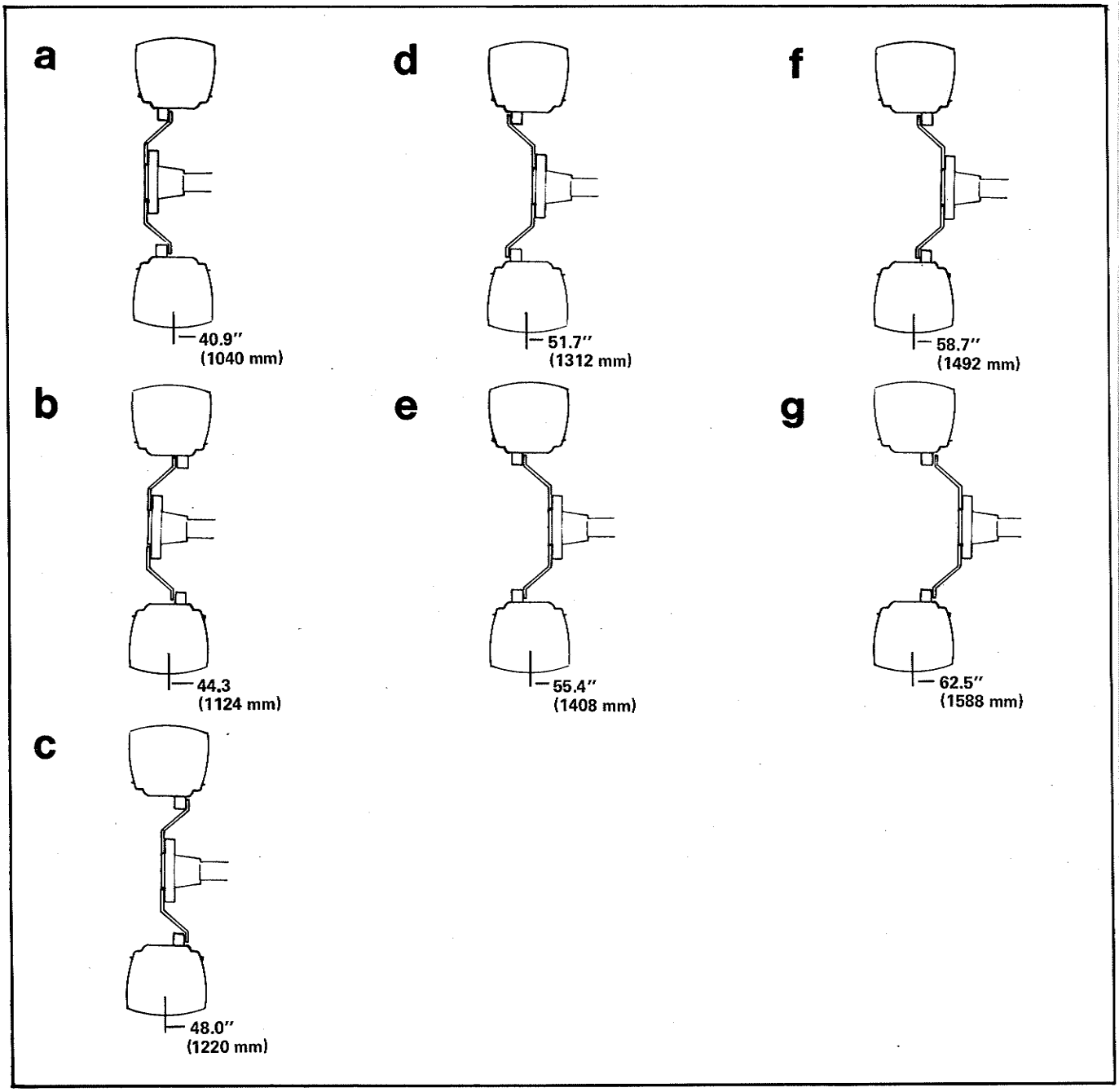


FIGURE 40 - 5030 Rear Wheel Tread

MODEL 5030 & 9528 REAR WHEEL TREAD WITH 12.4 x 24 AGRICULTURAL TIRES (Figure 40)

The rear wheel hubs cannot be shifted on the axle but wheel discs can be mounted either dished in or dished out and the wheels can be bolted to the discs in several ways to provide seven wheel treads as shown in Figure 40.

To adjust wheel tread:

1. Locate tractor on smooth level surface, then stop engine, latch brake plates together, engage brake lock lever and apply brakes.
2. Block the front wheels securely to keep the tractor from moving forward or backward, then jack up and block both ends of the rear axle housing securely in such position that the rear wheels and wheel discs can be interchanged and located to provide the desired wheel tread, a, b, c, d, e, f, or g as shown in Figure 40.

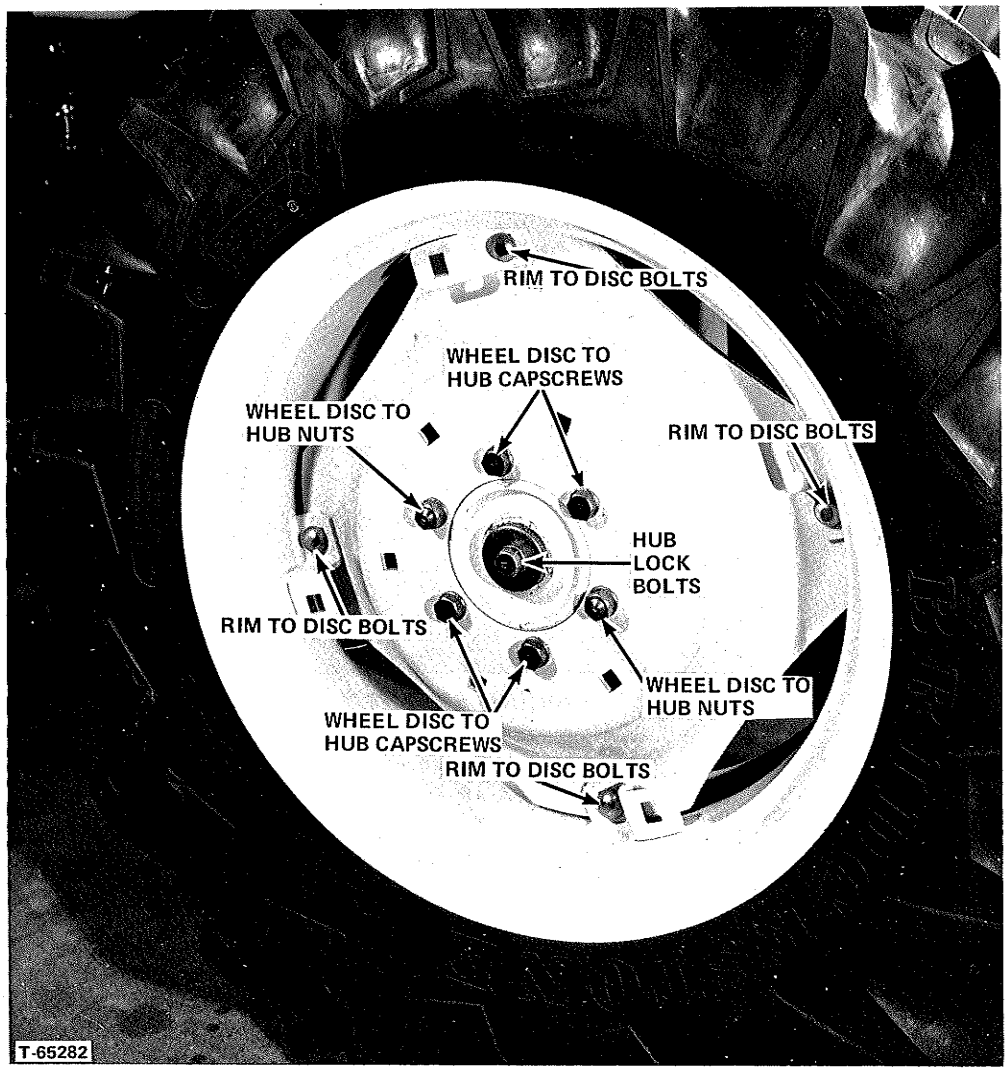


FIGURE 40A

NOTE: Figure 40 shows only the left rear wheel for each of the tread widths a. through g. In each case the right rear wheel must be located in the same position to equally space the wheels from the tractor center line. Rearange the wheels from side to side as required to make sure that tires always rotate in the proper direction as specified by the forward rotational direction arrow on the side of each tire.

Maintain rear wheel discs to hub bolts and nuts and rear wheel hub lock bolts tightened to 115 ft.-lbs. (158 N · m) of torque. Also maintian rim to disc bolts, tightened to 90 ft.-lbs. (122 N · m) of torque. (See Figure 40A).

WARNING: Never operate a tractor with loose wheel, rim or hub bolts.

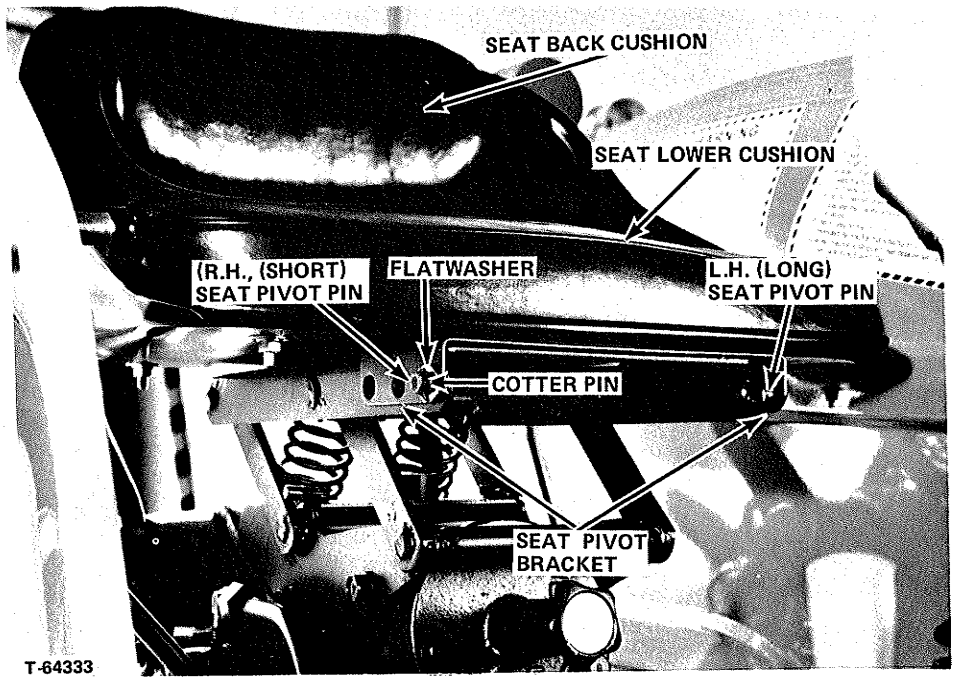


FIGURE 41

OPERATOR'S SEAT (Figure 41)

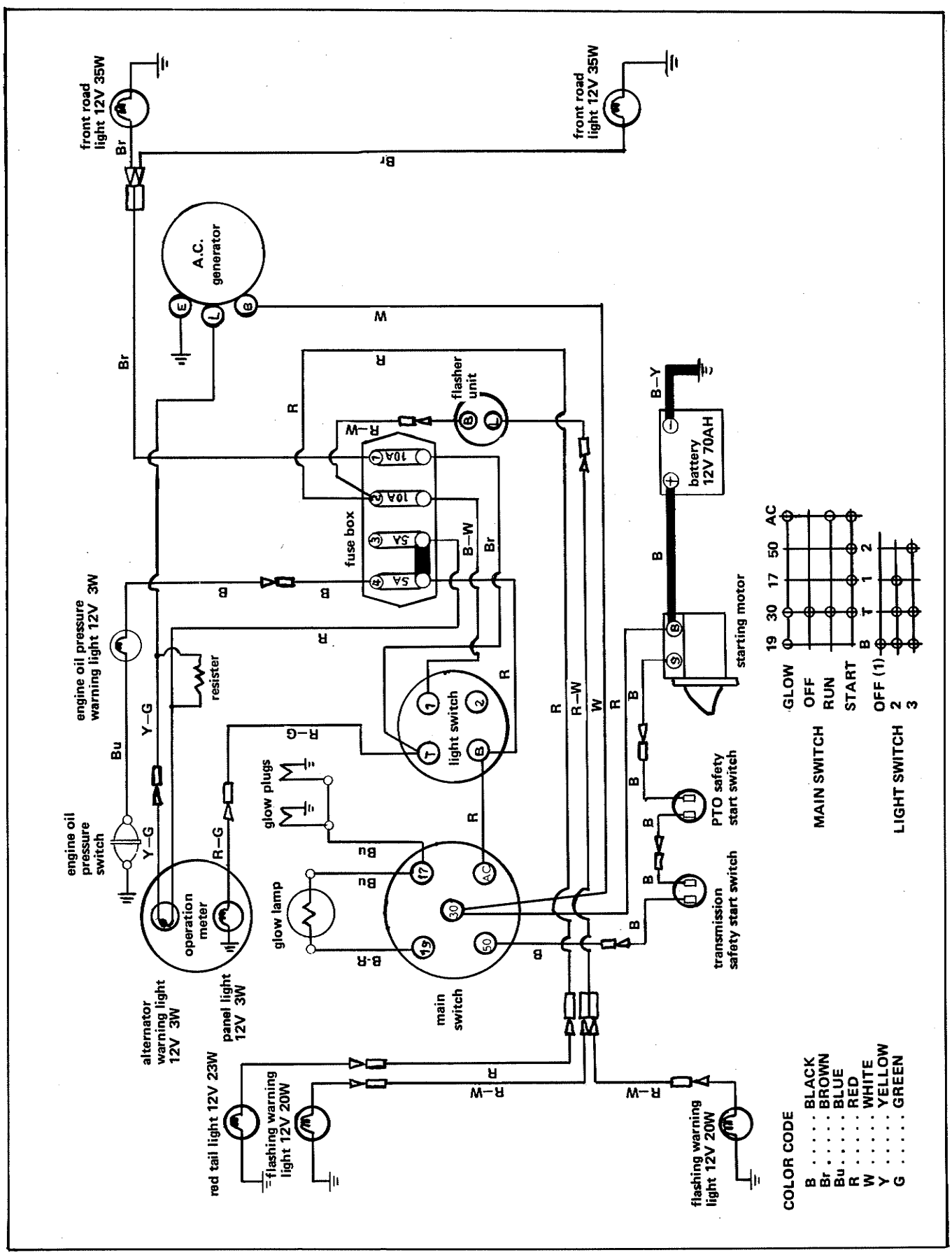
The operator's seat consists of a back cushion and a lower cushion. Two coil springs and a parallel link serve as buffers to protect the seat from vibration and shock, thus providing operating comfort.

The position of the seat can be adjusted forward and rear ward in three steps. For proper operator comfort it is advisable to adjust the seat so the lower part of the operator's back is slightly forward of seat back cushion. The operator should be in a relaxed position and holding the steering wheel.

Figure 41 shows the seat in the fully rearward position. To change seat position, remove the cotter pin and flat washer from the R.H. seat pivot pin. Slide seat fully to the right, then lift R.H. side of seat upward to clear R.H. pivot pin and slide seat to left until seat pivot bracket clears the L.H. pivot pin.

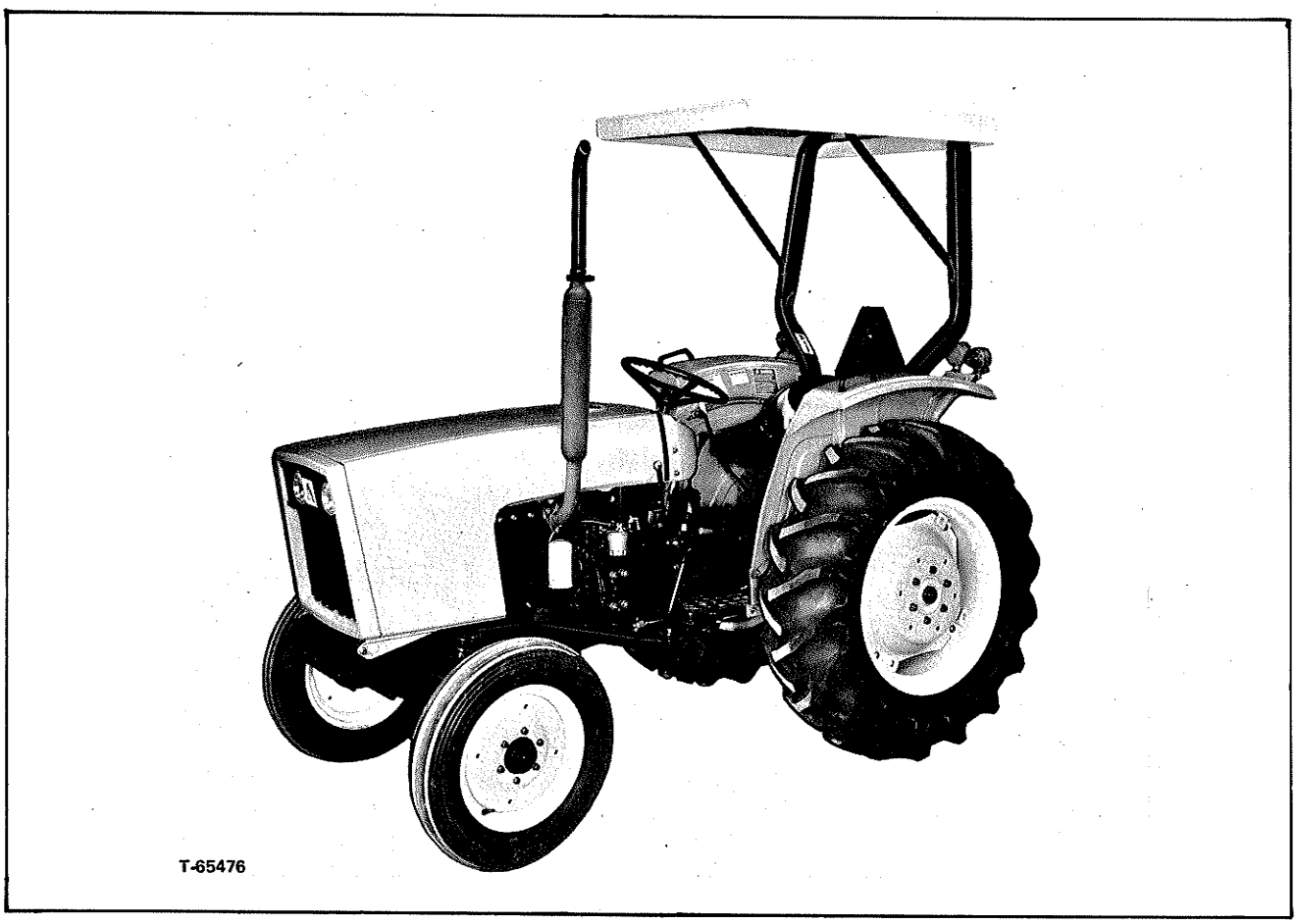
To reinstall seat, place the desired hole in L.H. side of seat pivot bracket over the end of L.H. pivot pin. Slide seat to right and place corresponding hole in R.H. side of pivot bracket over end of R.H. pivot pin and slide seat to left. Place flatwasher over R.H. pivot pin and install cotter pin to hold seat in place.

When seat is not occupied it may be tipped forward about the pivot pins and supported on the steering wheel to protect the seat cushions from sun and rain.


front road light 12V 35W
front road light 12V 35W
A.C. generator
flasher unit
fuse box
10A
10A
5A
5A
battery 12V 70AH
starting motor
engine oil pressure warning light 12V 3W
resister
engine oil pressure switch
operation meter
alternator warning light 12V 3W
panel light 12V 3W
glow plugs
glow lamp
light switch
main switch
PTO safety start switch
transmission safety start switch
red tail light 12V 23W
flashing warning light 12V 20W
flashing warning light 12V 20W
MAIN SWITCH
GLOW
OFF
RUN
START
LIGHT SWITCH
OFF (1)
2
3
COLOR CODE
B . . . . . BLACK
Br . . . . . BROWN
Bu . . . . . BLUE
R . . . . . RED
W . . . . . WHITE
Y . . . . . YELLOW
G . . . . . GREEN

NOTES

Miscellaneous, Optional, and Extra Equipment



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WARNING: Never permit anyone to examine, clean, service, or adjust the tractor or any equipment operated by it UNTIL tractor engine is stopped, brakes are set, transmission shift lever is in neutral, P.T.O. is disengaged, and all moving parts have stopped.

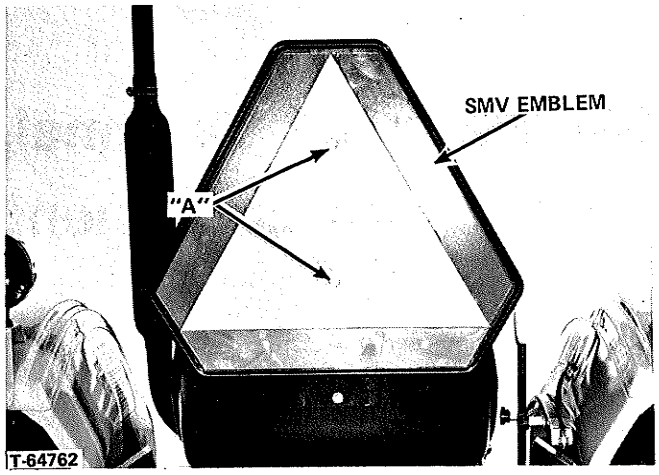


FIGURE 1

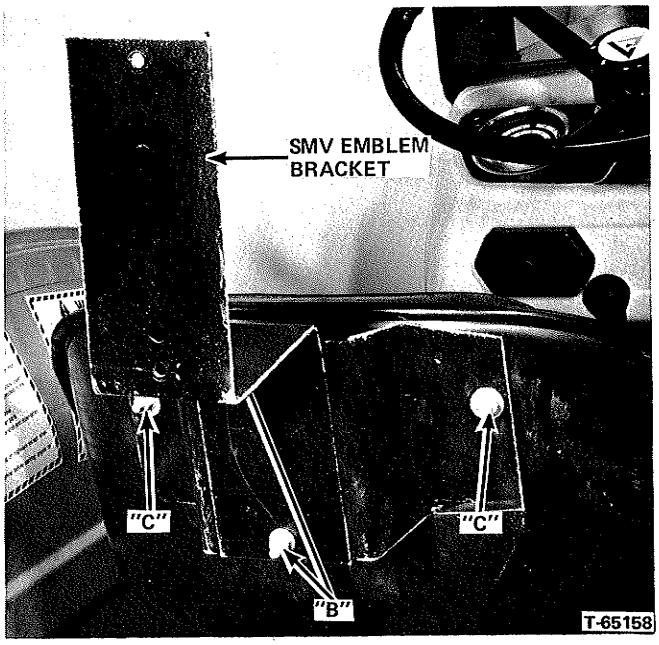


FIGURE 2

INSTALLING ROPS FRAME ON 5020 & 9523 TRACTOR

On Model 5020 and 9523 tractors the brackets at the lower ends of the protective frame assembly bolt directly to the L.H. and R.H. draft arm anchor brackets and the lower cross frame bolts between the rear surfaces of the differential housing and the lift housing and the front surface of the upper link bracket. See Figures 3 and 4. To install the frame on tractor:

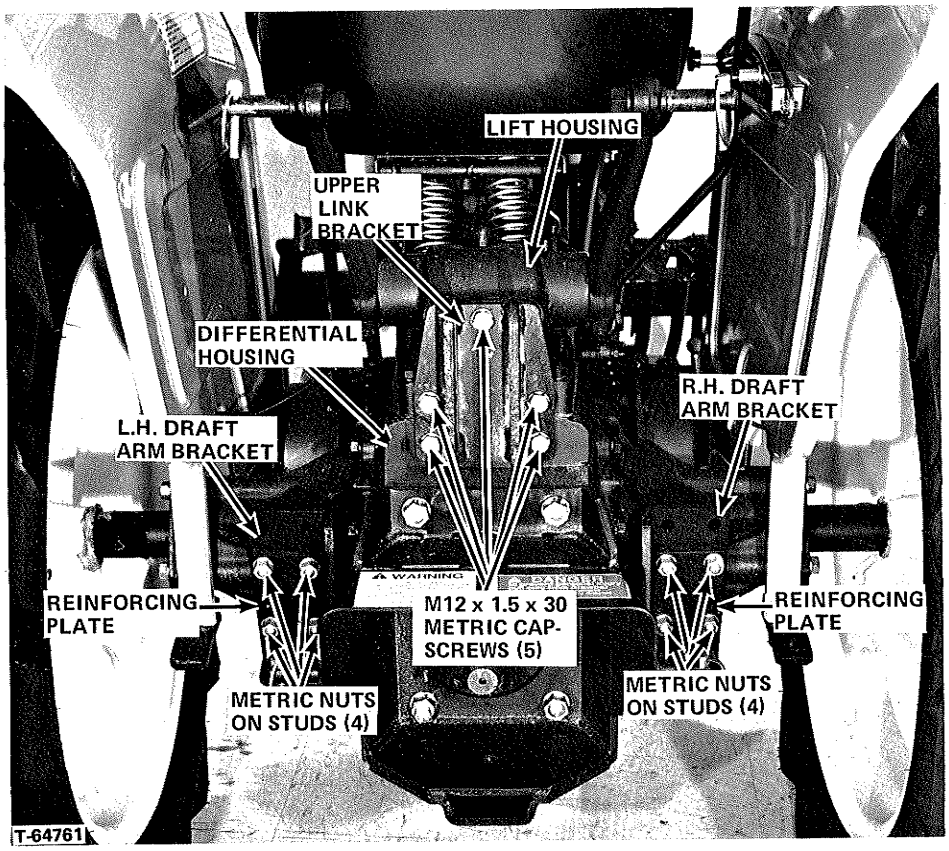


FIGURE 3

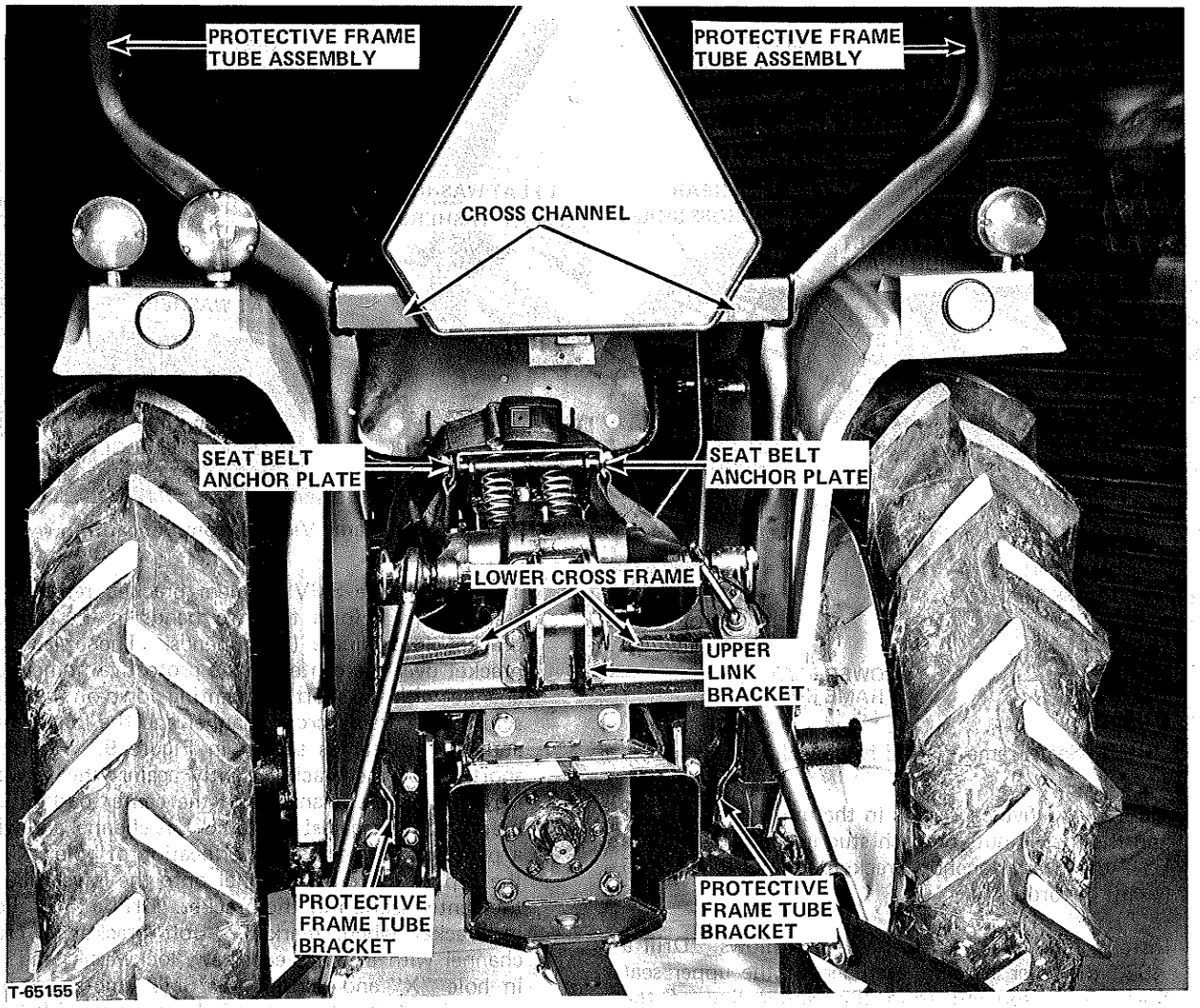


FIGURE 4

1. Remove the SMV emblem from its bracket by removing bolts "A", Figure 1. Remove bolts "B", Figure 2 and separate the SMV emblem bracket from the seat bracket. Remove nuts and washers at "C" and remove the seat bracket from the rear of the tractor seat and set it aside for possible future use if tractor is used without protective frame. Reinstall the nuts and washers at "C" on the bolts in the seat back and tighten securely.

2. Remove the five M12x1.5x 30 mm metric capscrews and lockwashers that hold the upper link bracket to the rear of the lift housing and the differential housing and remove the bracket. See Figrure 3. Also remove the four metric nuts that hold the reinforcing plates to the R.H. and L.H. draft arm anchor brackets. Save the nuts and lockwashers but lay aside the reinforcing plates and the five metric capscrews for re-use if the protective frame is removed.

3. Position the protective frame assembly vertically upright at the rear of the tractor as shown in Figure 4. Place the four holes in each bracket at the lower ends of the frame tube over the four studs in the R.H. and L.H. draft arm anchor brackets from which the metric nuts, lockwashers and the reinforcing plates were removed in step 2. Install the metric nuts and lockwashers but do not tighten.

4. Install the five new M 12 x 1.5 x 40 gr. 8.8 capscrews, supplied with the frame group, from the rear through the upper link bracket with the metric lockwashers (removed in step 2) under the capscrew heads. Install six washers, .53" I.D. x .938" O.D. x .06" thick on the front of the single capscrews in the top hole of the bracket and thread that screw loosely into the top hole in the rear face of the lift housing, making sure that all six washers are on the capscrew and between the lift housing and the upper link bracket.

5. Slide the remaining four capscrews through the holes in the lower cross frame of the protective frame assembly and thread them into the tapped holes in the rear faces of the lift housing and differential housing.

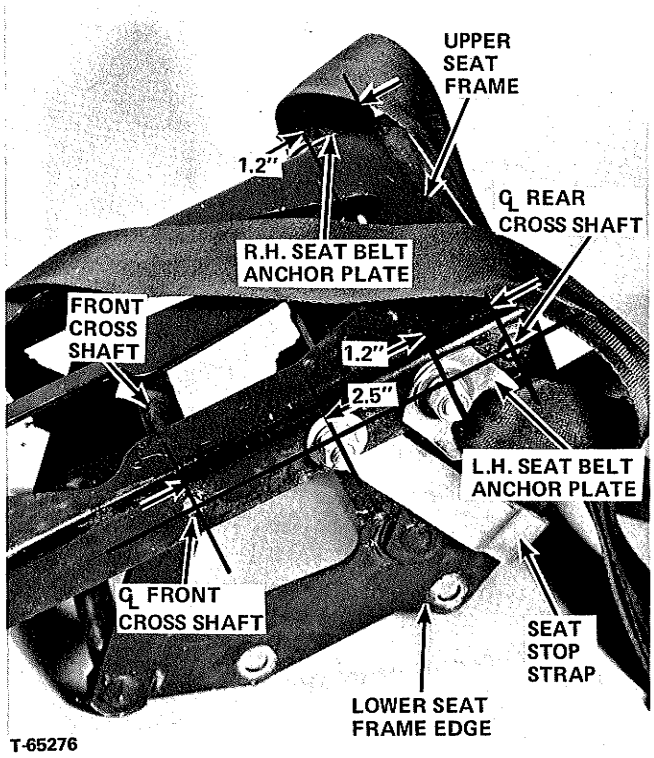


FIGURE 5 - Seat Frame Viewed from L.H. Upper Side

6. Tighten the five capscrews in the upper link bracket and the metric nuts on each stud in the R.H. and the L.H. draft arm anchor brackets to 55 ft.-lbs. (75 N · m) of torque.

7. Install seat belt to seat frame as follows: Drill a .406" diameter hole in each leg of the upper seat frame 1.2" forward from the center line of the rear cross shaft as shown in Figure 5. In each hole install a .375" by 1" grade 5 plated capscrew from the inside outward with a .406" x 1.0" x .06" thick flatwasher between capscrew head and inside of leg of the seat frame, another flatwasher against the outside of the leg, a seat belt anchor plate, another flatwasher, lockwasher and nut. Turn each anchor plate downward and to the rear as shown in Figure 5 and tighten nuts to 23 ft.-lbs. (31 N · m) of torque.

8. Drill another .406" hole in the L.H. leg of the upper seat frame 2.5" to the rear of the centerline of the front cross shaft as shown in Figure 5. Install the seat stop strap with a .375" x 1.25" grade 5 plated capscrew with head inside of seat frame leg, the seat stop strap next to capscrew head, three, .406" x 1.0" x .06" flatwashers between the strap and inside of the seat frame leg, another flatwasher, lockwasher and nut on capscrew on outside of seat frame leg. Make sure that the lower end of seat stop strap is hooked over the edge of the lower seat frame as shown in Figure 6 and tighten capscrew and nut to 23 ft.-lbs. (31 N · m) of torque.

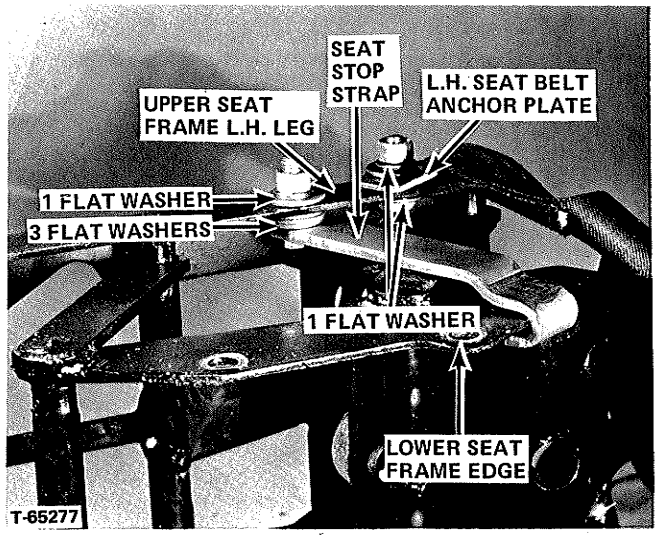


FIGURE 6 - Seat Frame Viewed from Beneath Lower L.H. Side.

9. To reinstall the SMV emblem bracket, removed in step 1, first reform the two bends in the emblem bracket into square (90^{o}) bends. Then place the bracket over the center of the protective frame cross channel with the short leg pointing down on the front side of the frame cross channel and the long leg up and to the rear as shown in Figure 9. Hold the short leg of the bracket tightly against the forward leg of the cross channel and the center part of the bracket down against the top of the channel and with a pencil or scribe mark the location of hole "X" in the top of the cross channel onto the lower side of the center section of the bracket. Drill a .343" hole in bracket where marked. Bolt bracket to cross channel with a .312" capscrew, lockwasher and nut in hole "X" and reinstall the SMV emblem on the rear side of the long leg of the bracket with bolts "A" removed in step 1, as shown in Figures 9 & 10. Tighten hardware securely.

⚠ DANGER

some implements, including three point hitch mounted backhoes, when mounted on this tractor may seriously interfere with the Rollover Protection Structure.

carefully check operation of any implement, especially maximum height to which implement can be lifted, to insure that there is proper clearance to avoid damage or personal injury to operator by contact with the ROPS.

FIGURE 7 - Decal No. 269803

⚠ WARNING

use seat belt with cab and protective frame

FIGURE 8 - Decal No. 267964

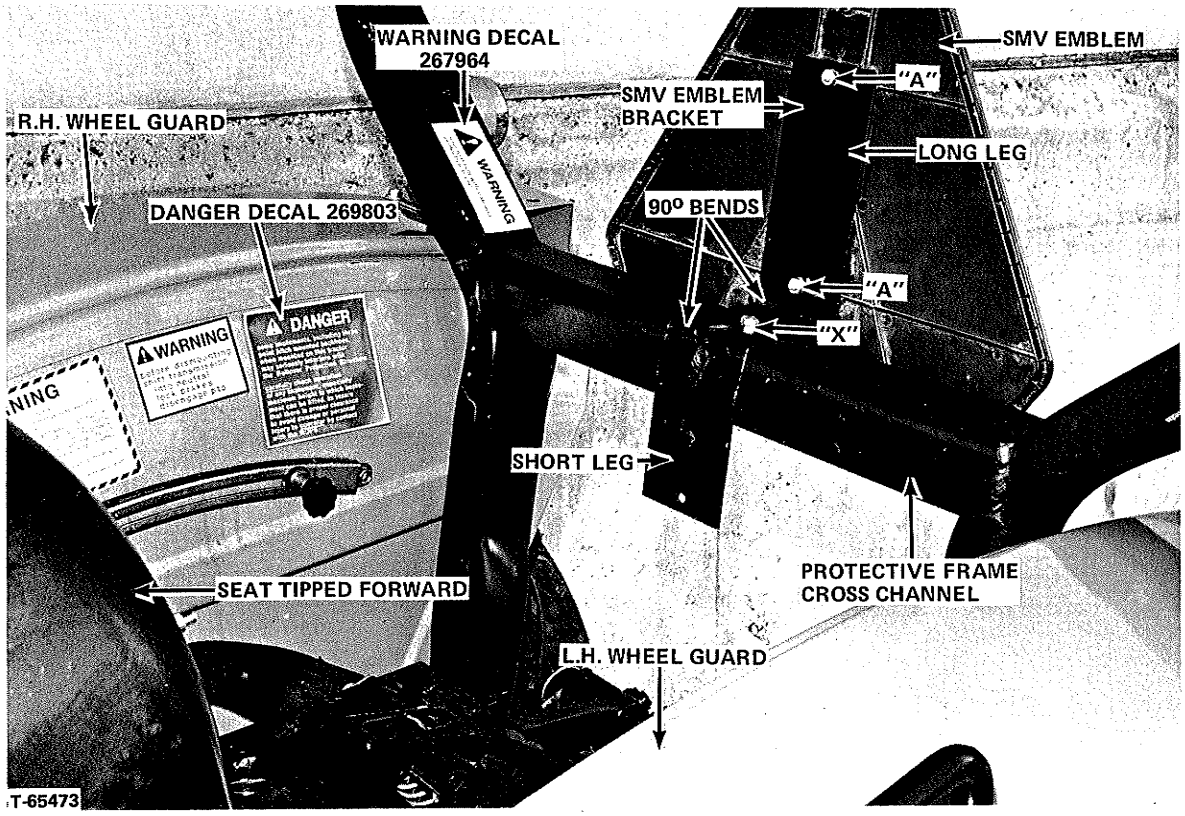


FIGURE 9 - Operator's Station w/ROPS Frame Installed (Seat Removed for Better Visibility)

10. Install the two safety decals supplied with the protective frame as follows:

    Locate Decal No. 269803, "DANGER - - " (Figure 7) on the R.H. wheel guard facing operator as shown in Figure 9.

    Locate Decal No. 267964, "WARNING - - " (Figure 8) on the inside surface of the R.H. protective frame tube as shown in Figure 9.

REINSTALLATION OF ROPS PROTECTIVE FRAME

WARNING: This protective frame for Allis-Chalmers Model 5020 tractor and Simplicity Model 9523 tractor (Fig. 4 through 10) has been designed and manufactured to meet ROPS (Roll Over Protective Structures) requirements. ROPS for these tractors were tested and met requirements of OSHA, Standard Part 1928, Subpart C for a gross vehicle weight of 3360 lbs. (1524 kg).

Any modification of these structures or changes in the mounting or mounting hardware or increase in gross vehicle weight will nullify compliance with these requirements.

In the event that the protective frame structure becomes damaged, the damaged parts or assemblies should be replaced rather than repaired to assure continued roll over protection. Do not substitute capscrews of lesser size or grade in case the original ones become lost or damaged. Use only capscrews of the size and grade specified and tightened to the torque values given in this text. See your authorized dealer for available parts and assemblies.

WARNING: ALWAYS use the seat belt with the protective frame. Replace the belt promptly if it should become frayed or damaged.

DO NOT use seat belt if tractor is not equipped with a protective frame.

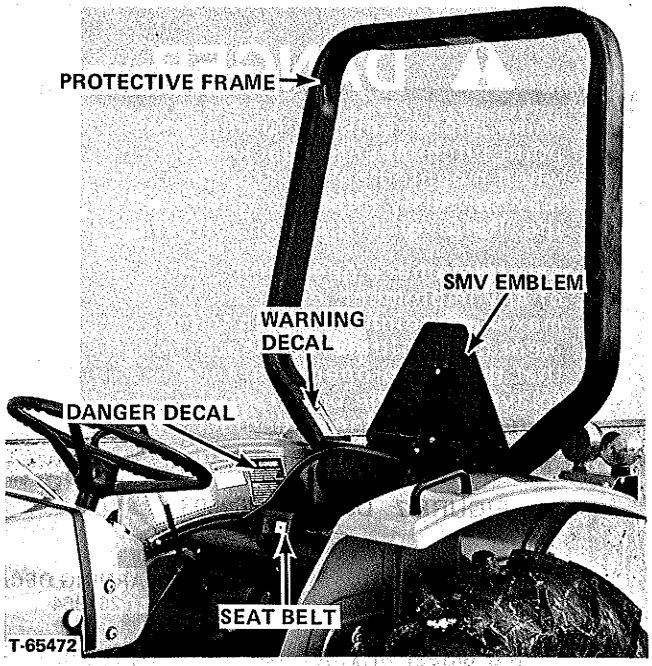


FIGURE 10 - Protection Frame Installed

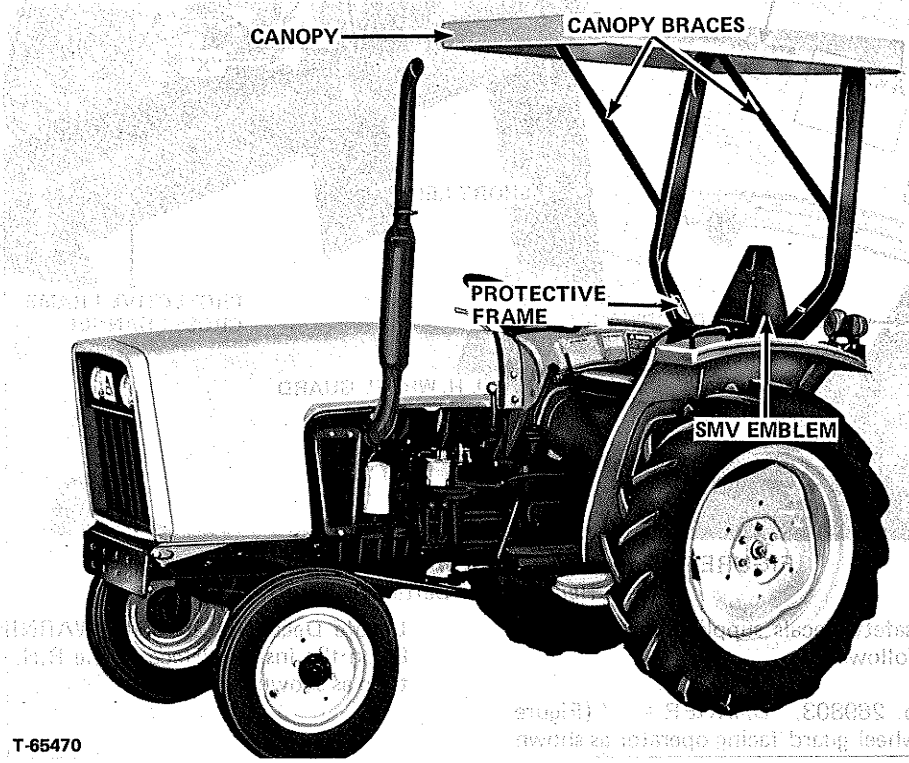


FIGURE 11 - Optional Canopy on Protective Frame

CANOPY FOR PROTECTIVE FRAME

A canopy that covers the area over the operators station, as shown in Figure 11 is available as optional equipment for tractors equipped with protective frame. The canopy can be obtained from your authorized dealer.

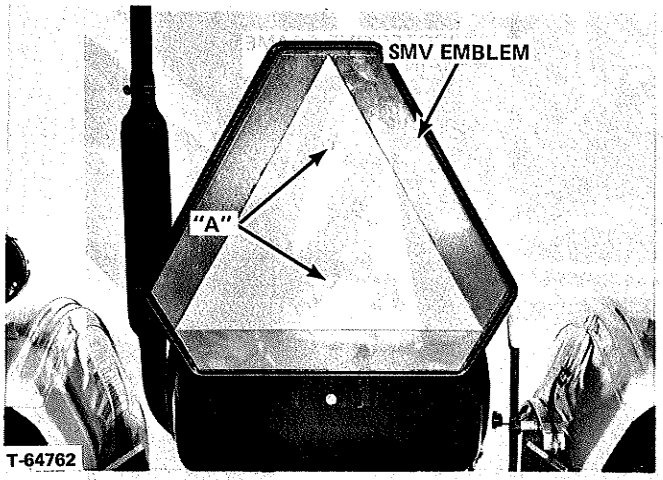


FIGURE 1

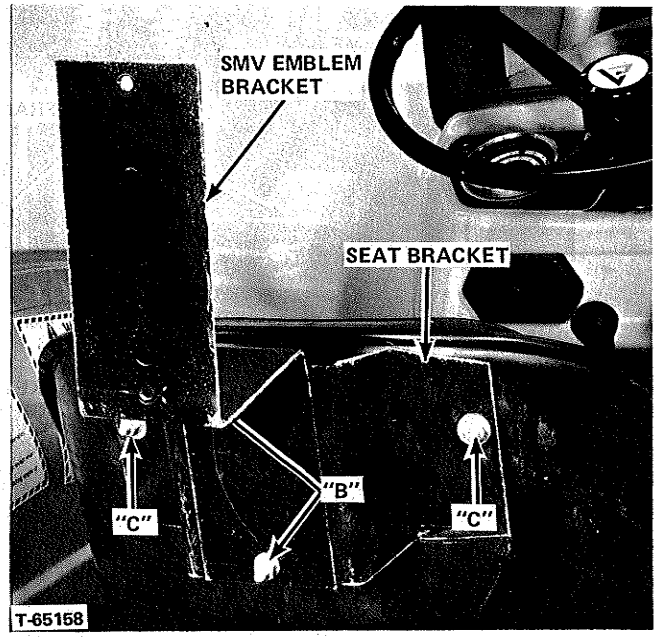


FIGURE 2

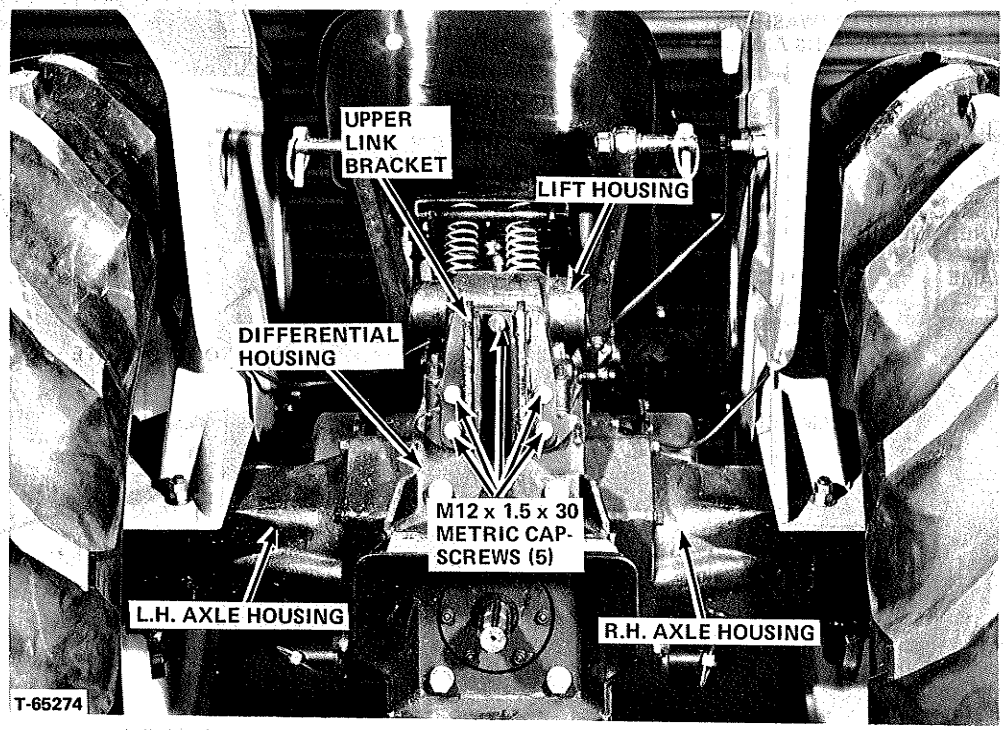


FIGURE 3

INSTALLING ROPS FRAME ON 5030 and 9528 TRACTOR

On Model 5030 and 9528 tractors the lower ends of the protective frame main tube bolt directly to the rear surface of the R.H. and L.H. axle housing with large U-bolts around the housings. The lower cross frame of the assembly bolts between the rear surfaces of the differential housing and lift housing and the front surface of the upper link bracket. See Figures 3 and 4. To install frame on tractor follow these steps:

1. Remove the SMV emblem from its bracket by removing bolts "A", Figure 1. Remove bolts "B", Figure 2 and separate the SMV emblem bracket from the seat bracket. Remove nuts and washers at "C" and remove the seat bracket from the rear of the tractor seat and set it aside for possible future use if tractor is used without protective frame. Reinstall the nuts and washers at "C" on the bolts in the seat back and tighten securely.

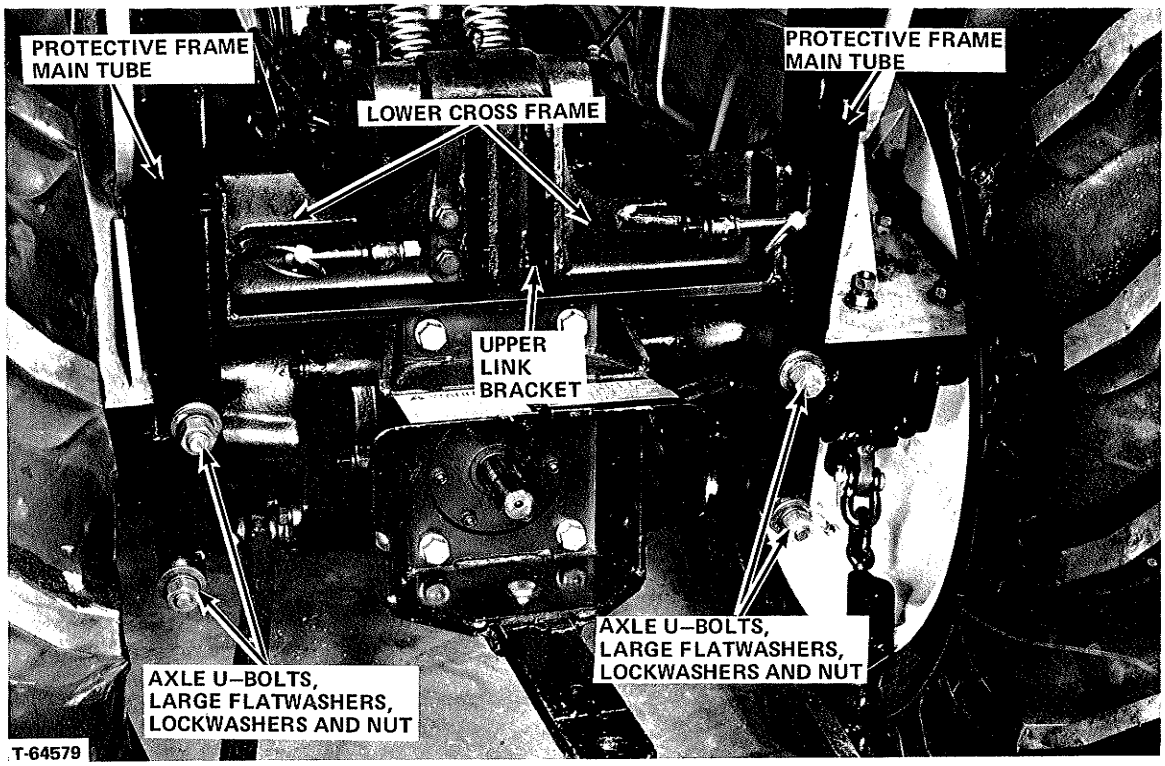


FIGURE 4

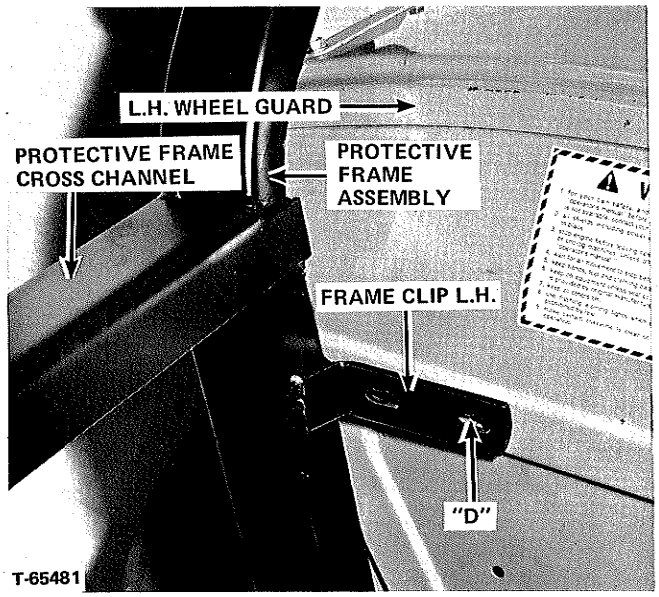


FIGURE 5

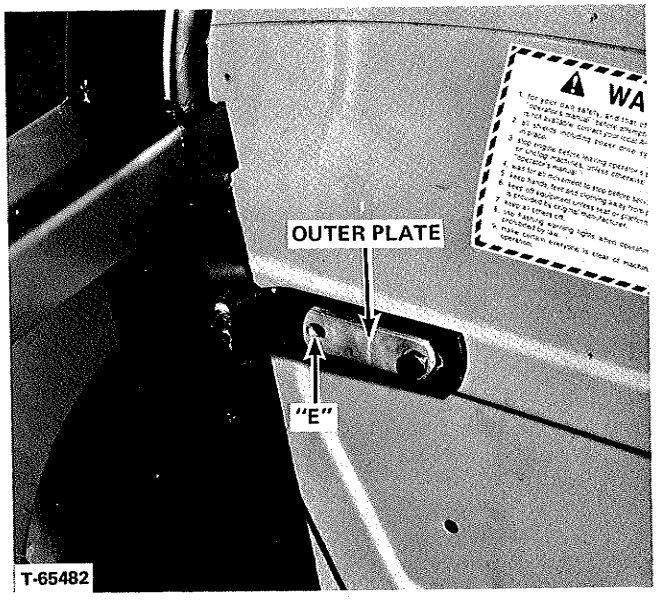


FIGURE 6

2. Remove the five M12 x 1.5 x 30 mm metric capscrews and lockwashers that hold the upper link bracket to the rear of the lift housing and the differential housing and remove the bracket. See Figure 3. Save the lockwashers, but lay the capscrews aside for possible future use if the protective frame is removed.

3. Position the protective frame assembly vertically upright at the rear of the tractor as shown in Figure

4. Place large U-bolts over the R.H. and L.H. axle housing from the front and insert them in the holes in the lower ends of the protective frame main tube. Install large flatwashers, lockwashers and nuts but do not tighten at this time. Move frame as required to align the four holes in the center of the lower cross frame with the holes in lift and differential housing from which the upper link bracket was removed in step 2.

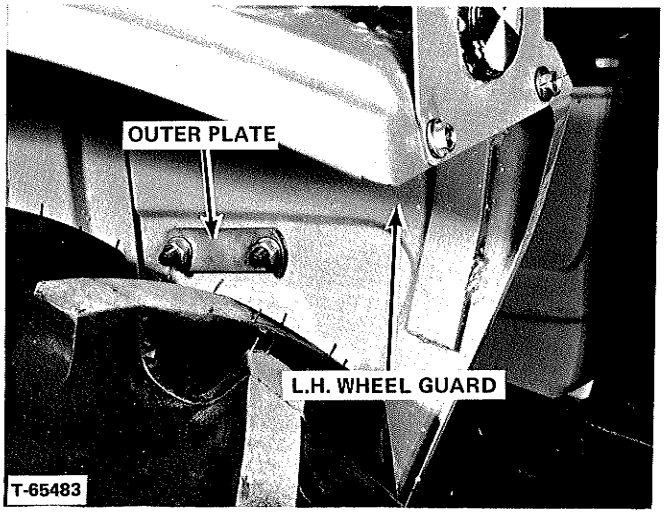


FIGURE 7

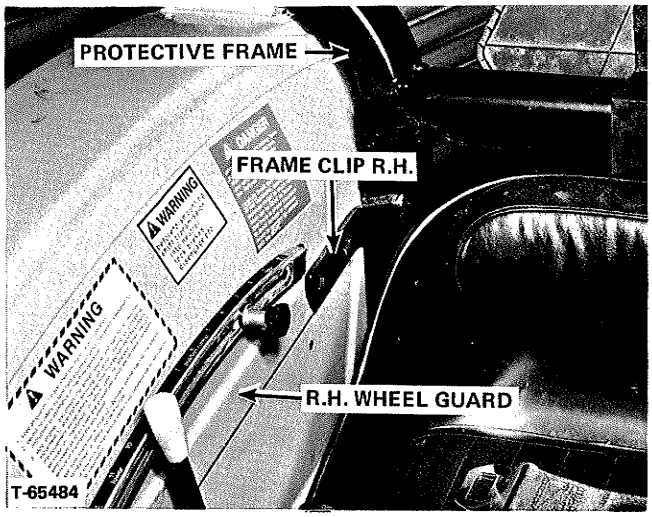


FIGURE 8

4. Install the five new M 12 x 1.5 x 40 gr. 8.8 capscrews, supplied with the frame group, from the rear through the upper link bracket with the metric lockwashers (removed in step 2) under the capscrew heads. Install six washers, .53" I.D. x .938" O.D. x .06" thick on the front of the single capscrew in the top hole of the bracket and thread that screw loosely into the top hole in the rear face of the lift housing, making sure that all six washers are on the capscrew and between the lift housing and the upper link bracket.

5. Slide the remaining four capscrews through the holes in the lower cross frame of the protective frame assembly and thread them into the tapped holes in the rear faces of the lift housing and differential housing.

6. Tighten the five capscrews in the upper link bracket to 55 ft.-lbs. (75 N · m) of torque. Then tighten the nuts on the axle U-bolts to 70 ft.-lbs. (95 N · m).

7. Refer to Figures 5, 6 & 7 and fasten the frame clip L.H. to the L.H. wheel guard as follows:

   a. Center punch and drill a .406" hole "D" in the wheel guard at the center lines of the forward slot in clip. Figure 5.

   b. Bolt the loose outer plate on theinside of the frame clip with a .375" bolt in hole "D" and use it as a template to locate and drill another .406" hole "E" in the wheel guard through the rear slot in frame clip. Figure 6.

   c. Remove bolt from hole "D" and move the outer plate to the outside of wheel guard as shown in Figure 7. Install two .375" x 16 x 1.5" grade 5 capscrews with flatwasher under head on inside of frame clip and lockwasher and nut outside of outer clip. Tighten nuts to 23 ft.-lbs. (31 N ·. m) of torque.

8. Follow same procedure in step 7 to install and tighten capscrews in frame clip R.H. and R.H. wheel guard.

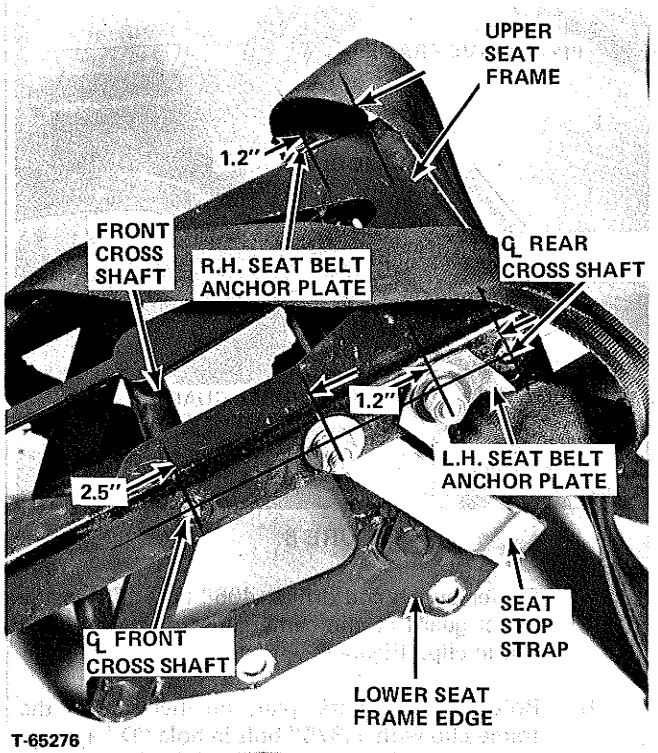


FIGURE 9 - Seat Frame Viewed from L.H. Upper Side

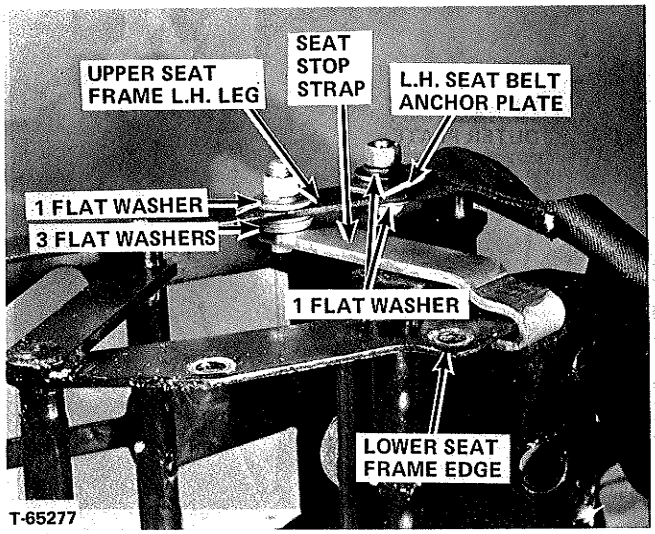


FIGURE 10 - Seat Frame Viewed from Beneath Lower L.H. Side

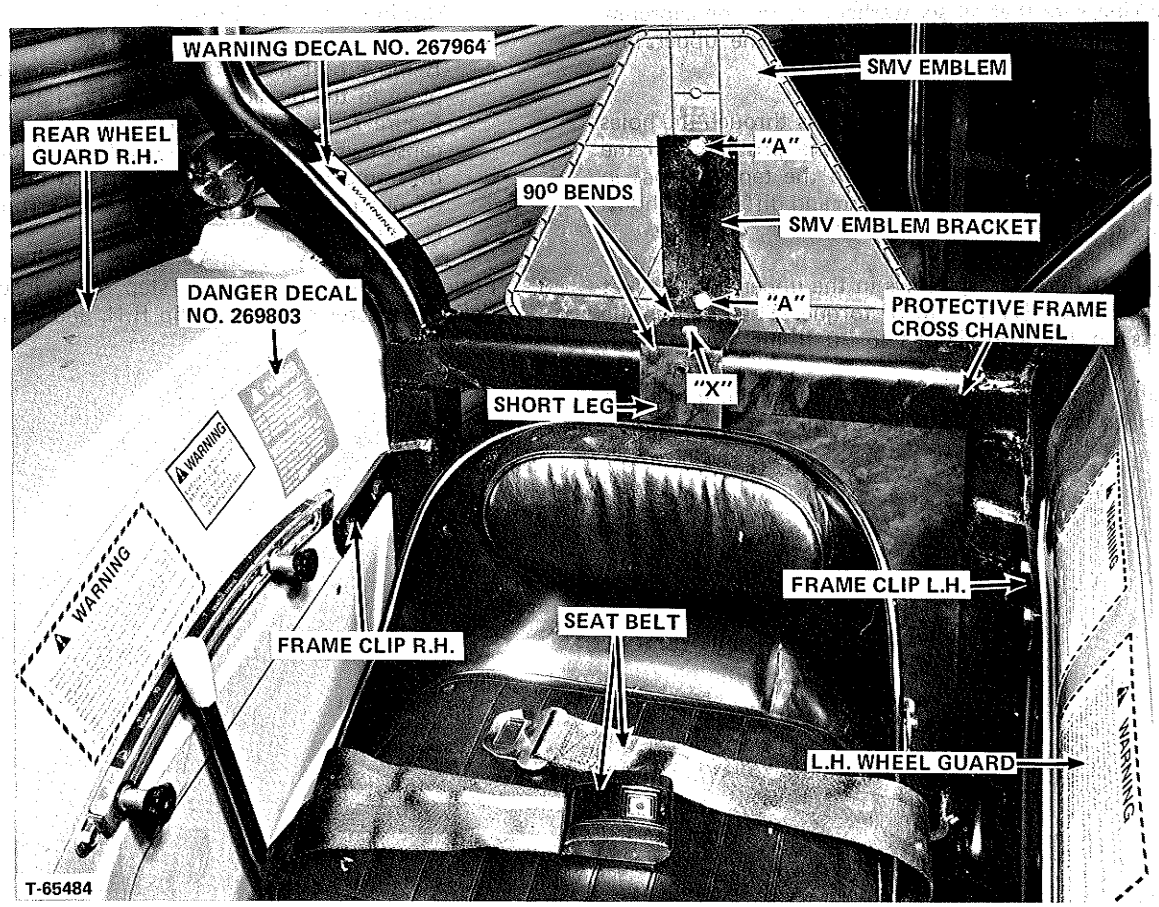


FIGURE 11

9. Install seat belt to seat frame as follows: Drill a .406" diameter hole in each leg of the upper seat frame 1.2" forward from the centerline of the rear cross shaft as shown in Figure 9. In each hole install a .375" by 1" grade 5 plated capscrews from the inside outward with a .406" x 1.0" x .06" thick flatwasher between capscrew head and inside of leg of the seat frame, another flatwasher against the outside of the leg, a seat belt anchor plate, another flatwasher, lockwasher and nut. Turn each anchor plate downward and to the rear as shown in Figure 9, and tighten nuts to 23 ft.-lbs. (31 N · m) of torque.

10. Drill another .406" hole in the L.H. leg of the upper seat frame 2.5" to the rear of the centerline of the front cross shaft as shown in Figure 9. Install the seat stop strap with a .375" x 1.25" grade 5 plated capscrew with head inside of seat frame leg, the seat stop strap next to capscrew head, three .406" x 1.0" x .06" flatwashers between the strap and inside of the seat frame, leg, another flatwasher, lockwasher and nut on capscrew on outside of seat frame leg. Make sure that the lower end of seat stop strap is hooked over the edge of the lower seat frame, as shown in Figure 10 and tighten capscrew and nut to 23 ft.-lbs. (31 N · m) of torque.

11. To reinstall the SMV emblem bracket, removed in step 1, first reform the two bends in the sign bracket into square (90°) bends. Then place the bracket over the center of the protective frame cross channel with the short leg pointing down on the front side of the frame cross channel and long leg up and to the rear as shown in Figure 11. Hold the short leg of the bracket tightly against the forward leg of the cross channel and the center part of the bracket down against the top of the channel and with a pencil or scribe mark the location of hole "X" in the top of the cross channel onto the lower side of the center section of the bracket. Drill a .343" hole in bracket where marked. Bolt bracket to cross channel with a .312" capscrew, lockwasher and nut in hole "X" and reinstall the SMV emblem on the rear side of the long leg of the bracket with bolts "A" removed in step 1, as shown in Figures 11 and 14. Tighten hardware securely.

12. Install the two safety decals supplied with the protective frame as follows:

    Locate Decal No. 269803, "DANGER - - " (Figure 12) on the R.H. wheel guard facing operator as shown in Figures 11 and 14.

    Locate Decal No. 267964, "WARNING - - " (Figure 13) on the inside surface of the R.H. protective frame tube as shown in Figures 11 and 14.

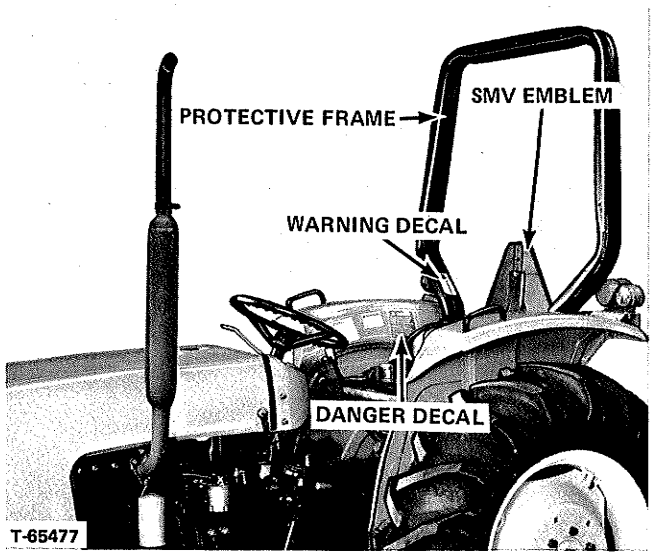


FIGURE 12

DANGER

some implements, including three point hitch mounted backhoes, when mounted on this tractor may seriously interfere with the Rollover Protection Structure.

carefully check operation of any implement, especially maximum height to which implement can be lifted, to insure that there is proper clearance to avoid damage or personal injury to operator by contact with the ROPS.

FIGURE 13 - Decal No. 269803

WARNING

use seat belt with cab and protective frame

FIGURE 14 - Decal No. 267964

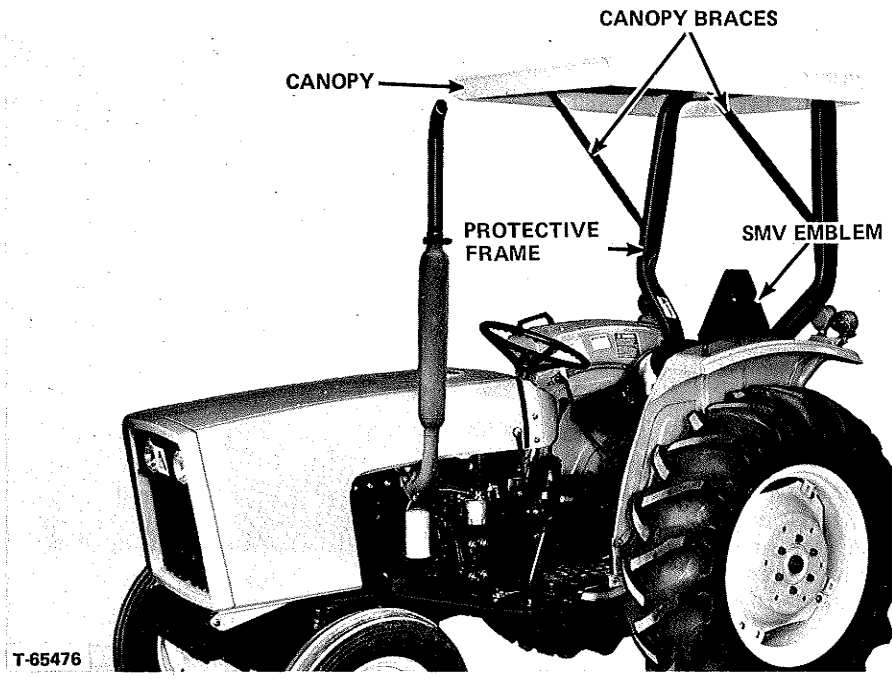


FIGURE 15 - Canopy for Protective Frame

REINSTALLATION OF ROPS PROTECTIVE FRAME

WARNING: This protective frame for Allis-Chalmers Model 5030 tractor and Simplicity Model 9528 tractor (Figure 4 through 14) has been designed and manufactured to meet ROPS (Roll Over Protective Structures) requirements. ROPS for these tractors were tested and met requirements of OSHA, Standard Part 1928, Subpart C for a gross vehicle weight of 4160 lbs. (1887 kg).

Any modification of these structures or changes in the mounting or mounting hardware or increase in gross vehicle weight will nullify compliance with these requirements.

In the event that the protective frame structure becomes damaged, the damaged parts or assemblies should be replaced rather than repaired to assure continued roll over protection. Do not substitute capscrews of lesser size or grade in case the original ones become lost or damaged. Use only capscrews of the size and grade specified and tightened to the torque values given in this text. See your authorized dealer for available parts and assemblies.

WARNING: ALWAYS use the seat belt with the protective frame. Replace the belt promptly if it should become frayed or damaged.

DO NOT use seat belt if tractor is not equipped with a protective frame.

CANOPY FOR PROTECTIVE FRAME

A canopy that covers the area over the operators station, as shown in Figure 15 is available as optional equipment for tractors equipped with protective frame. The canopy can be obtained from your authorized dealer.

LIQUID BALLAST IN TRACTOR TIRES

Placing water in tires is an economical means of adding weight to the wheels of a tractor. The addition of calcium chloride is recommended to prevent the water from freezing. This solution when added in the tire inner tube will not damage the inner tube or tire if used in proper proportions. Use of this method of weighting the tires has the full approval of the tire companies.

See your dealer for information on filling your tractor tires.

The following tables provide data on the filling of front and rear tractor tires with calcium chloride solution, based on valve level or approximately 75% fill.

These tables are based on the use of Type I (77%) commercial calcium chloride flake. If Type 2 (94%) calcium chloride flake is used, reduce the "lbs. $CaCl_2$ weights in these tables by 25%.

Plain water freezes solid at 32° F. (0° C.) The 3-1/2 lb. (1.6 kg) calcium chloride solution is slush free to -12° F. (-24° C.) and will freeze solid at -52° F. (-47° C.). The 5 lb. (2.3 kg) calcium chloride solution is slush free to -52° (-47° C.) and will freeze solid at -62° F. (-52° C.).

If more weight is needed for difficult traction conditions, wheel weights may be added.

If the valve core is to be removed for any cause, it will be necessary to jack up tractor and turn the wheel until the valve stem is on top, otherwise the solution will be lost.

WARNING: Calcium chloride and water solution as supplied in tractor tires is not dangerous, but because it may attach clothing or cause skin irritations on some persons, especially if it comes in contact with open cuts or sores, we urge everyone to avoid coming in direct contact with it.

LIQUID BALLAST WEIGHT PER TIRE

TIRE SIZE	WATER				3-1/2 POUND $CaCl_2$ GAL. 0.42 kg $CaCl_2$/LITRE						5 POUNDS $CaCl_2$/GAL. 0.60 kg $CaCl_2$/LITRE					
	Gal.	Litres	Lbs.	kg	Gal. Water	Litres	Lbs. $CaCl_2$	kg	Total Wt. Lbs.	kg	Gal. Water	Litres	Lbs. $CaCl_2$	kg	Total Wt. Lbs.	kg
4.00 x 12	2	8	17	8	1.7	6	6	3	20	9	1.6	6	8	4	21	10
5.00 x 15	3	11	25	11	2.5	9	8.5	4	29	13	2.5	9	13	6	34	15
9.5 x 24	17	64	142	64	15	57	53	24	178	81	14	53	70	32	187	85
11.2 x 24	23	87	192	87	20	76	70	32	237	108	19	72	95	43	253	115
12.4 x 24	30	114	250	113	26	98	91	41	308	140	25	95	125	57	334	151

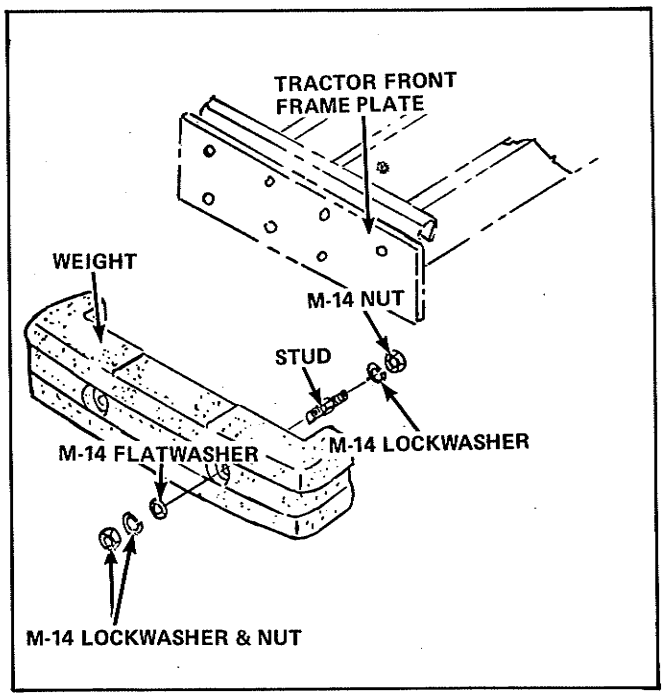
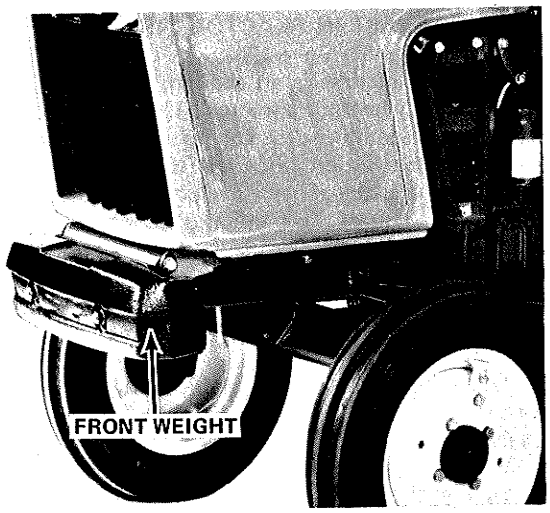


FIGURE 1 - Front Weight Kit



T-64309

FIGURE 2 - Front Weight Installed

SINGLE FRONT WEIGHT FOR MODELS 5020, 5030, 9523 & 9528 TRACTORS

A single front weight of 85 lb. (38.5 kg) is available as an option for the above model tractors. It mounts with two metric studs to the front frame plate of the tractor as shown in Figures 1 & 2.

To install weight, hold it up in front of the tractor front frame plate and select the holes in the frame plate that align with holes in the weight. Install studs in proper holes in plate and secure with lockwasher and nut at rear of plate. Place weight on studs and secure with flatwasher, lockwasher and nut on the outer end of each stud. Tighten nuts to 54 ft.-lbs. (73 N · m).

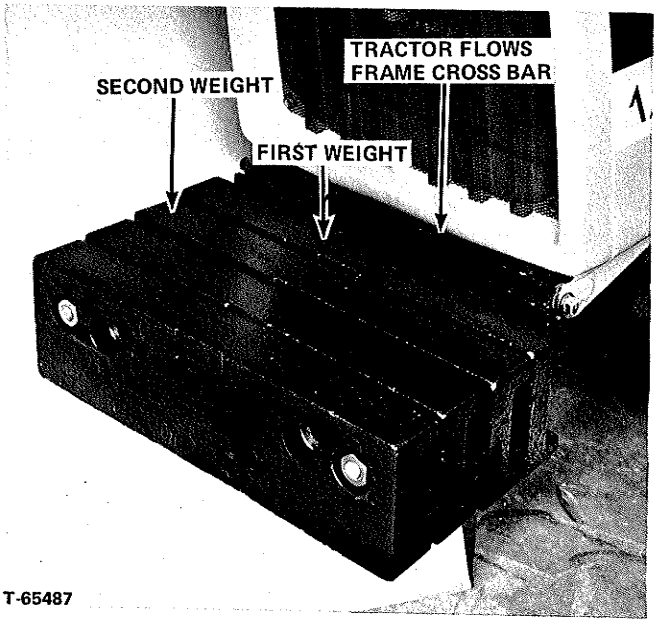


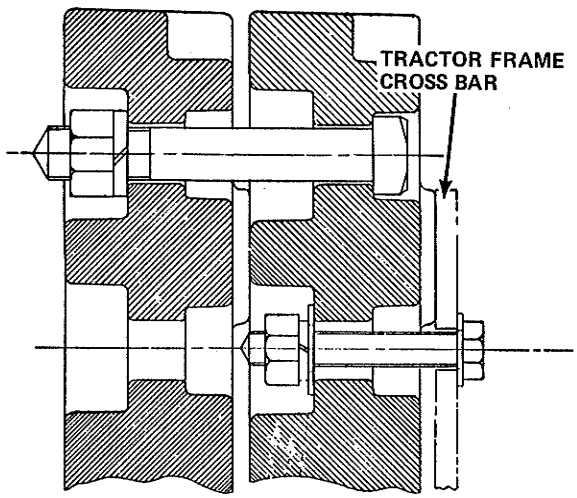
FIGURE 1

STACKED FRONT WEIGHTS FOR MODELS 5020, 5030 9523 & 9528 TRACTORS

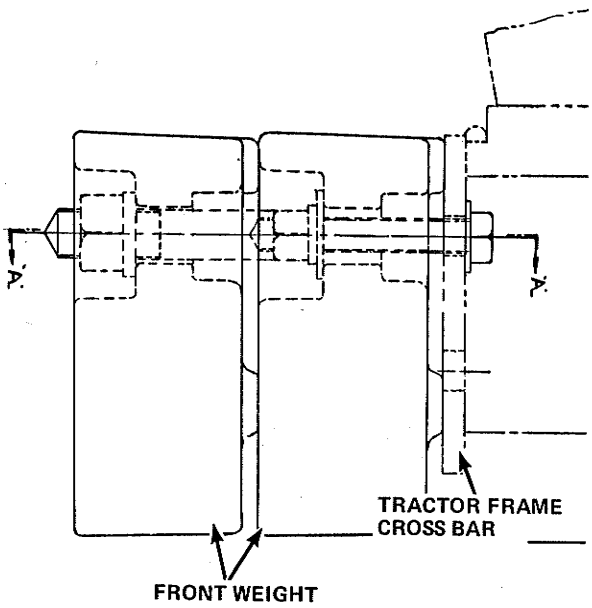
Front weights that can be mounted and stacked to the tractor front frame cross bar are available for the above model tractors. Each weight weighs approx. 75 lb. (34 kg).

To mount the weights, attach first weight to the tractor front frame cross bar with two .5" - 13 x 3.25", plated gr. 8, hex head capscrews, flatwashers, lockwashers and nuts in the two inside holes in the first weight as shown in Figure 2. Square weight up to tractor front cross bar and tighten nuts to 80 ft.-lbs. (108 N · m).

Insert two .75"-10 x 5" grade 2, plated, square head bolts forward through the outer holes in the first weight to mount the second weight as shown in Section A*A, top view, Figure 2. If a third weight is to be mounted, two more square head bolts must be installed in the inner holes of the second weight when it is placed in position in front of the first weight. Tighten nuts on square head bolts to 120 ft.-lbs. (163 N · m).



Section "A – A" – Top View



Side View

FIGURE 2

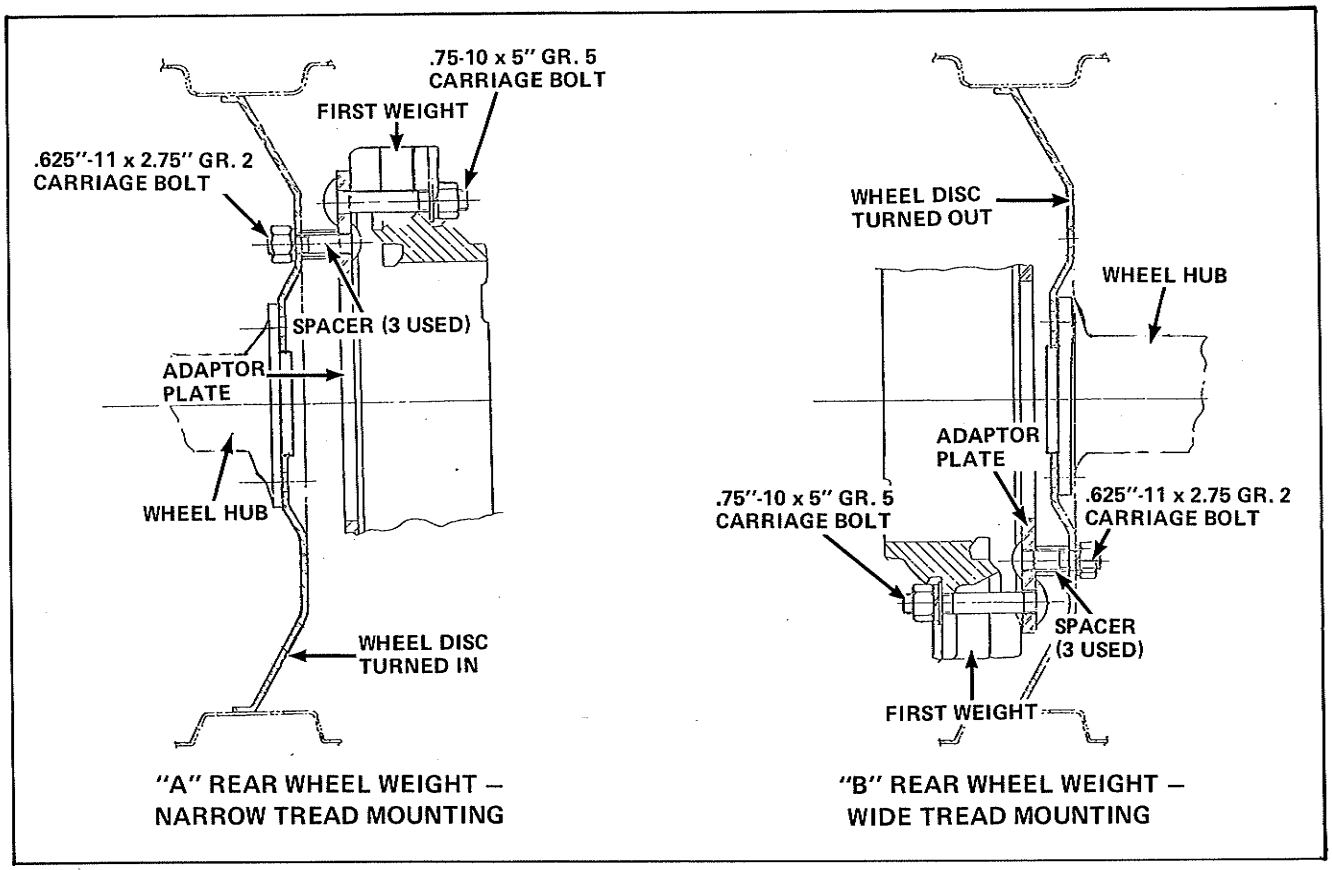


FIGURE 1 - Rear Weights on Wheels with Non-Detachable Rims

STACKED REAR WHEEL WEIGHTS FOR MODELS 5020, 5030, 9523 & 9528 TRACTORS

Stacked rear wheel weights, each weighing 125 lb. (57 kg) can be mounted on these tractors by first bolting an adapter plate to the outside of each rear wheel disc with three carriage bolts and spacers, and then bolting one or more weights to the outside of the adaptors as shown in Figures 1, 2, and 3.

To install weights on model 5020 & 9523 tractors with rear wheels that have non-detachable rims; first bolt the adapter plates to the outside of the rear wheel discs with three .625"-11 x 2.75", grade 2, plated carriage bolts and three spacers, lockwashers and nuts as shown in Figure 1. Before placing the adapter plate and spacers against the wheel disc install two .75"-10 x 5", grade 5, plated carriage bolts outward in holes 180° apart in the adapter plate to support the first added weight. Tighten the three - .625" carriage bolt nuts to 70 ft.-lbs. (95 N · m). Place the first wheel weight over the .75 x 5" carriage bolts, secure with flatwashers, lockwashers and nuts. Tighten to 200 ft.-lbs. (271 N · m).

If a second weight is to be added, bolt it to the first weight with two .75"-10 x 5" grade 2, plated, square head bolts, flatwashers, lockwashers and nuts spaced 180° apart as shown in Figure 2. Tighten nuts on .75" square head bolts to 120 ft.-lbs. (163 N· m).

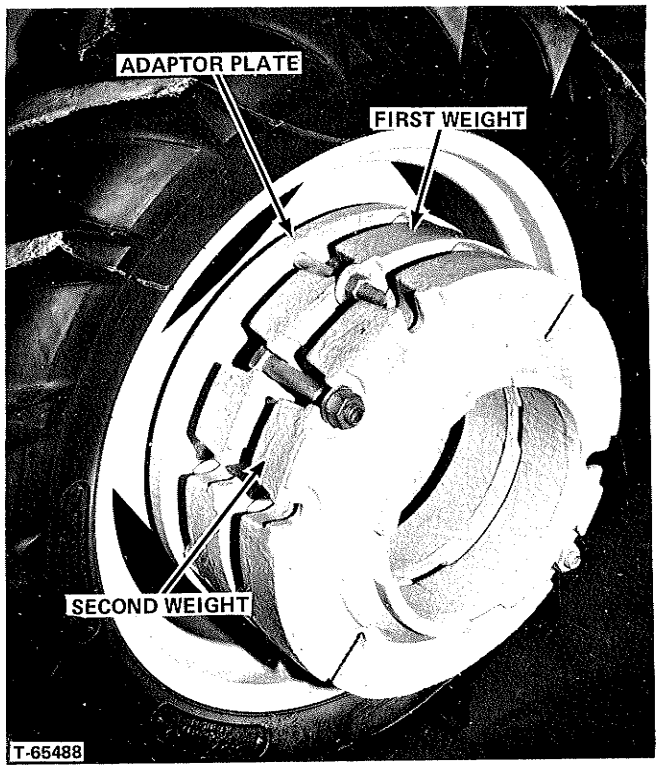


FIGURE 2

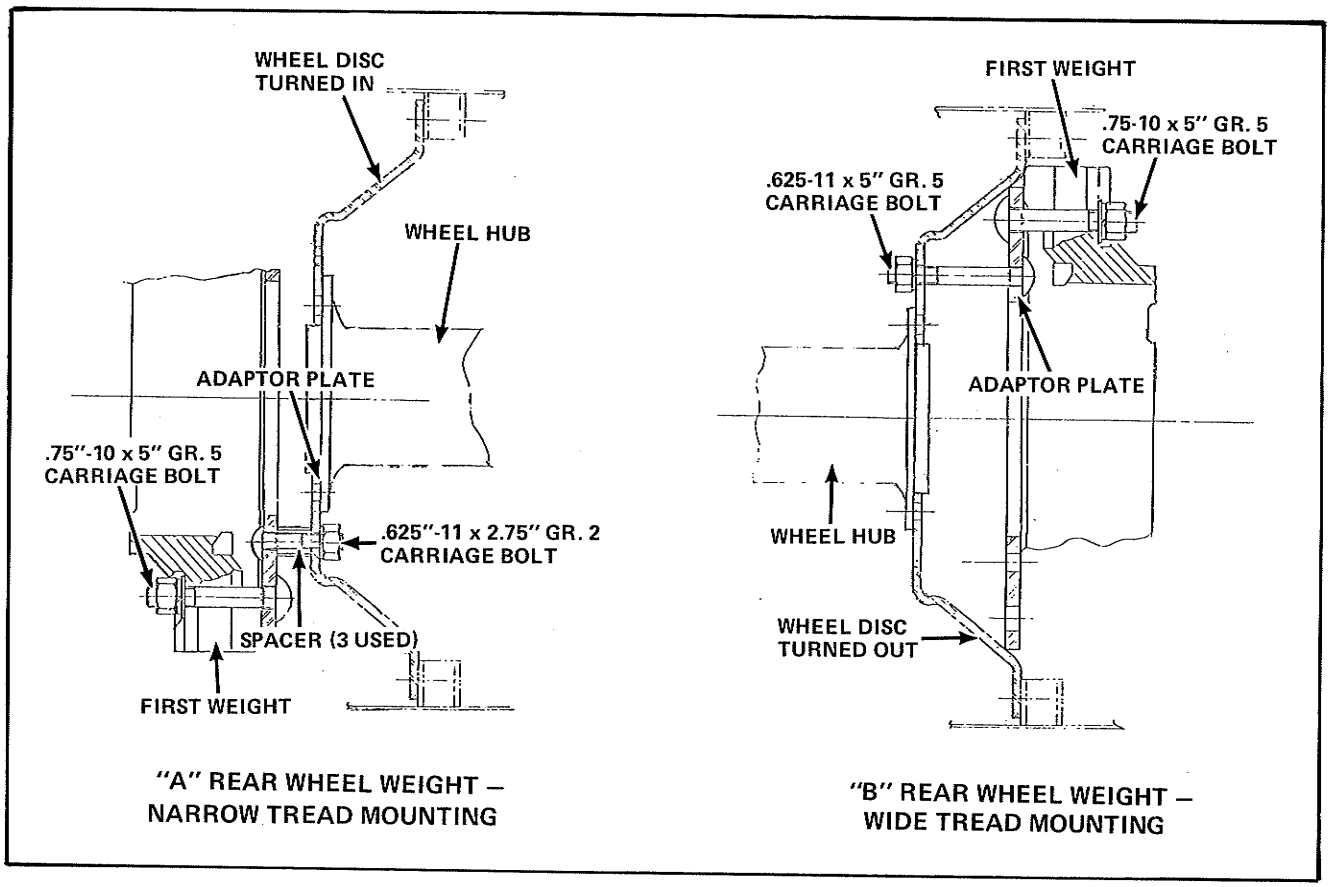


FIGURE 3 - Rear Weights on Wheels with Detachable Rims

To install weights on **models 5030 and 9528 tractors,** and on **5020 and 9523 tractors** with rear wheels having detachable rims, first bolt the adaptor plates to the outside of the wheel discs with three carriage bolts as shown in Figure 3. If the rear wheel discs are turned in for the standard and narrow tread widths, bolt the adaptor plate to the outside of the discs with three .625"-11 x 2.75", grade 2, plated, carriage bolts and three spacers, lockwashers and nuts as shown on the L.H. ("A") side of Figure 3. If the rear wheel discs are turned out for the wider tread widths, bolt the adapter plate directly against the tapered part of the disc with three .625"-11 x 5", grade 5, plated, carriage bolts, lockwashers and nuts as shown on the R.H. ("B" side of Figure 3.)

NOTE: In both narrow tread and in wide tread installations, before bolting the adapter plates to the wheel discs. Insert two, .75-10 x 5", grade 5, plated, carriage bolts outward in holes 180° apart in the adaptor plates to support the first added weight. In both types of installation tighten the three - .625" carriage bolt nuts to 70 ft.-lbs. (95 N · m). Place the first wheel weight over the .75 x 5" carriage bolts, secure with flatwashers, lockwashers and nuts. Tighten to 200 ft.-lbs. (271 N · m).

If a second weight is to be added, bolt it to the first weight with two .75"-10 x 5" grade 2, plated, square head bolts, flatwashers, lockwashers and nuts spaced 180° apart as shown in Figure 2. Tighten nuts on .75" square head bolts to 120 ft.-lbs. (163 N · m).

OTHER OPTIONAL EQUIPMENT

Remote hydraulic valve and outlet
Break away remote hydraulic coupler

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